zibro®

SERVICE MANUAL

ROOM AIR CONDITIONER

S 1731
S 1735

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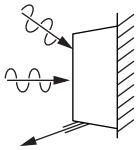
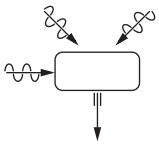
SPECIFICATION

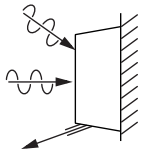
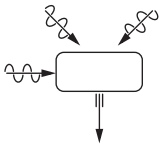
		Unit	INDOOR	OUTDOOR
			S 1731	S 1731
Cooling Capacity		BTU/h	9,000(4,400-10,600)	–
Heating Capacity		BTU/h	11,000(4,800-12,300)	–
Moisture Removal		L/h	1.6	–
Power source		phase	Single	
		V	230	
		Hz	50	
Airflow Method		OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air circulation (at High)		m^3/min	Cooling ; 7.8 Heating ; 8.6	–
Electrical Data	Input	W	Cooling ; 760 Heating ; 860	–
	Running Current	A	Cooling ; 3.6 Heating ; 4.1	–
	Starting Current	A	4.1	–
Piping Connection Port (Flare piping)		inch	L ; Half Union 1/4"	L ; 2-way valve 1/4"
		inch	G ; Half Union 3/8"	G ; 3-way valve 3/8"
Pipe Size (Flare piping)		inch	L (liquid side) ; 1/4"	L (liquid side) ; 1/4"
		inch	G (gas side) ; 3/8"	G (gas side) ; 3/8"
Drain hose	Inner diameter	mm	14	–
	Length	m	0.6	–
Power Cord	Length	m	1.4	–
	Number of core-wire		core-wire/ 1 mm^2	–
Dimensions	Height	mm	265	530
	Width	mm	795	780
	Depth	mm	192	277
Net Weight		kg	7.8	30.0

SPECIFICATION

		Unit	INDOOR	OUTDOOR
			S 1731	S 1731
Air Circulation	Type		Cross-flow Fan	Propeller Fan
	Motor Type		Induction (4-pole)	Induction (6-pole)
	Rated Output	W	18	21
Heat Exchanger			Plate fin configuration,forced draft 18.1FPI	19.5FPI
Refrigerant Control Device			–	Capillary Tube
Refrigerant (R410A)		g (oz)	–	850(30.0)
Thermostat			Electronic Control	–
Timer			Real time dual ON/OFF 7-hour OFF	–
Air Filter			Mold-proof	–
Parts Provided			1 Mounting plate 2 Remote controller 3 Battery (2 pcs.) 4 Remote controller holder 5 Screw cap (2 pcs.) 6 Drain elbow 7 Vibration proof rubber (4 pcs.) 8 Air clean filter×2 (Bamboo Charcoal/Photo-catalytic anti-odor filter×1 Bio-photo Catalytic filter×1) 9 Gum bushing	

★ Specifications are subject to change without notice.

SPECIFICATION

		Unit	INDOOR	OUTDOOR
			S 1735	S 1735
Cooling Capacity		BTU/h	11,300(4,800-11,900)	–
Heating Capacity		BTU/h	12,500(4,800-14,300)	–
Moisture Removal		L/h	2.0	–
Power source		phase	Single	
		V	230	
		Hz	50	
Airflow Method		OUTLET INTAKE	SIDE VIEW 	TOP VIEW 
Air circulation (at High)		m^3/min	Cooling ; 9.3 Heating ; 9.8	–
Electrical Data	Input	W	Cooling ; 970 Heating ; 880	–
	Running Current	A	Cooling ; 4.6 Heating ; 4.2	–
	Starting Current	A	4.6	–
Piping Connection Port (Flare piping)		inch	L ; Half Union 1/4"	L ; 2-way valve 1/4"
		inch	G ; Half Union 3/8"	G ; 3-way valve 3/8"
Pipe Size (Flare piping)		inch	L (liquid side) ; 1/4"	L (liquid side) ; 1/4"
		inch	G (gas side) ; 3/8"	G (gas side) ; 3/8"
Drain hose	Inner diameter	mm	14	–
	Length	m	0.6	–
Power Cord	Length	m	1.4	–
	Number of core-wire		core-wire/ 1 mm^2	–
Dimensions	Height	mm	265	530
	Width	mm	795	780
	Depth	mm	199	277
Net Weight		kg	8.9	30.0

SPECIFICATION

		Unit	INDOOR	OUTDOOR
			S 1735	S 1735
Air Circulation	Type		Cross-flow Fan	Propeller Fan
	Motor Type		Induction (4-pole)	Induction (6-pole)
	Rated Output	W	22	21
Heat Exchanger			Plate fin configuration,forced draft 19.5FPI	19.5 FPI
Refrigerant Control Device			–	Capillary Tube
Refrigerant (R410A)		g (oz)	–	850(30.0)
Thermostat			Electronic Control	–
Timer			Real time dual ON/OFF 7-hour OFF	–
Air Filter			Mold-proof	–
Parts Provided			1 Mounting plate 2 Remote controller 3 Battery (2 pcs.) 4 Remote controller holder 5 Screw cap (2 pcs.) 6 Drain elbow 7 Vibration proof rubber (4 pcs.) 8 Air clean filter×2 (Bamboo Charcoal/Photo-catalytic anti-odor filter×1 Bio-photo Catalytic filter×1) 9 Gum bushing	

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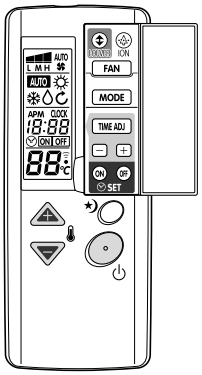
REMOTE-CONTROL TRANSMITTER



ON/OFF

Operation mode selection
COOL
DRY
HEAT
AUTOMATIC
CIRCULATION

Air flow selection
AUTOMATIC
HIGH
MEDIUM
LOW

Negative Ion

Room temperature setting
16℃ ～ 30℃

Timer operation selection
CONTINUOUS operation
OFF
ON
Sleep

Timer / time setting
Operation stops at the set time (OFF timer)
Operation starts at the set time (ON timer)
0.5 ～ 7.0hours(Sleep timer)

Air flow direction control
Auto angle selection
Auto swing mode
Manual mode

INDOOR UNIT

Sensing the room temperature
Room temperature sensor (thermistor)

Time delay safety control
Restarting is inhibited for approximately 3 minutes.

Indoor fan speed control
High, Med, Low

Operation indication lamps (LED)
POWER ☼ (GREEN or RED)
Lights up green during operation.
Lights up red when negative ions are generated.
TIMER ☼ (YELLOW)
Timer in operation
OPERATE ☼ (GREEN)
Outdoor unit operate

Dry operation mode
Automatic fan speed control

Room temperature control
Maintains the room temperature in accordance with the setting temperature.

Deice (defrost) control
Deicing operation automatically starts when the heating efficiency is declined by the ice formed in the outdoor unit.
After deicing operation, heating operation automatically starts with “Hot start function.”

Hot-start control (heating)

The indoor fan stops until the evaporator piping temperature will be reached.

Anti-freezing control for the evaporator

Compressor will be stopped when the evapolator's piping temperature is below 2℃ for one minute.
Compressor will be restarted when the evaporator's piping temperature is above 2℃.

Airflow direction control

When ON/OFF BUTTON is pressed, the vertical louver will move to the adequate positions for each operation automatically.
Manual operation.
The louver starts vertical swing with a push of the LOUVER BUTTON.
Push the LOUVER BUTTON once again to stop the louver at the desired position while swinging.

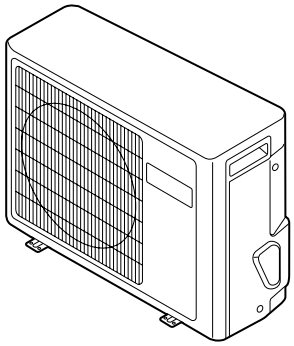
Auto recovery function

If there is any power failure during operation, operation status before power failure is memorized.
3 ～ 4 minutes after power recovery, the unit restarts automatically with previous operation status memorized.
(3 ～ 4 minutes is protective time for compressor.)

Attention

Because of Auto recovery function, if shutting off the power supply during operation, the unit may restart irrespective your intention when turning on the power supply next time.
If the unit is not to be used for a long time, shut off the power supply after terminating all operation with remote controller.

OUTDOOR UNIT



Inverter control

Inverter control reduce the ON/OFF times of compressor,so can keep the room temperature changeless during operation.

Electricity consumption

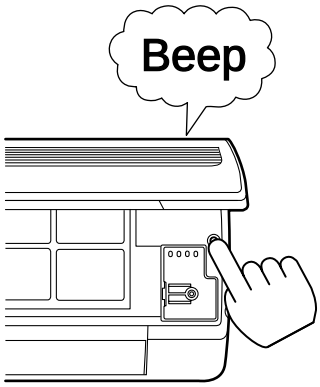
Inverter control can operate with less electricity consumption than normal air conditioner.

3 min. forced operation control

Once the compressor is activated, it does not stop for 3 minutes.
In case of termination of this operation, push the ON/OFF button on remote controller.

EMERGENCY AND TEST OPERATION

Emergency Operation

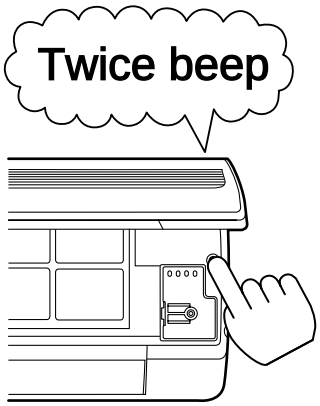


- Use this operation only when the remote controller is out of order or lost.
- When the emergency operation switch is pressed, beep starts once, which means the start of this operation.
- In this operation, the system automatically selects the operation modes, cooling (or heating when available) according to the room temperature, as follows.

Temperature	Operation mode	Designated temperature	Timer mode	Air flow
ABOVE 23℃	COOLING	26℃	CONTINUOUS	AUTOMATIC
BELOW 23℃	HEATING	23℃	CONTINUOUS	AUTOMATIC

- It is not possible to operate in dry mode.

Test Operation



Test operation switch is same as emergency one.

- Use this operation only for testing the performance of the machine in the condition where the room temperature is less than 16℃.
- Continue to press the test operation switch for more than 5 seconds. After you hear twice beep, release your finger from the switch : the cooling operation starts with the air flow speed “HI.”
- If the test operation switch is pressed more than 10 seconds, it doesn’t work.
- After 30 minutes, test operation ends automatically.

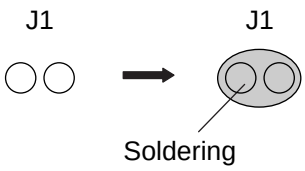
HOW TO RELEASE EMERGENCY AND TEST OPERATION

- In case of releasing during those operations, you can either push emergency operation switch once more or apply operation using remote control.
  You will hear a beep sound and emergency/ test operation is released.
- If you release the operation by remote control, operation will continue as setting of the remote control automatically.

INTERFERENCE PREVENTION OF SIGNALS FROM THE REMOTE CONTROLLER

When two indoor units used in the same room, interference of the signals may happen. To avoid this, alternative signal model B can be selected by the following. (Ex-factory setting is mode A)

- Remote controller side : Have “J1” on the PC board short-circuited by soldering.
- Indoor unit side : Cut “R13” on the PC board.



TIMER OPERATION

ON Timer operation

- Press the ON/OFF switch. Right after replacing new batteries, set the present time in advance.
- Set the “ON Time” : Press the “TIME ADJ” button twice.
  Adjust the time with the “⊞, ⊟” button.
  Press the “TIME ADJ” button twice.The setting of “ON Time” is completed and the present time appears on the LCD.
- Set the “ON Timer” : Press the Timer fixing button “ON”.

OFF Timer operation

- Press the ON/OFF switch. Right after replacing new batteries, set the present time in advance.
- Set the “OFF Time” : Press the “TIME ADJ” button 3 times.
  Adjust the time with the “⊞, ⊟” button.
  Press the “TIME ADJ” button once.The setting of “OFF Time” is completed and the present time appears on the LCD.
- Set the “OFF Timer” : Press the Timer fixing button “OFF”.

Sleep Timer operation

- Press the “SLEEP” button during the operation.
- Set the operating period by pressing the “SLEEP” button until the period designated appears on the LCD.

Timer Cancellation

- ON/OFF Timer : Press the Timer fixing button “ON”(On Timer) and/or “OFF”(Off Timer) once again.
- Sleep Timer : Press the “SLEEP” button until the operating period on the LCD disappears.

AIRFLOW DIRECTION CONTROL

Vertical adjustment

When ON/OFF switch is pressed, the vertical louver will move to the adequate positions for each operation automatically.

Swing of air flow

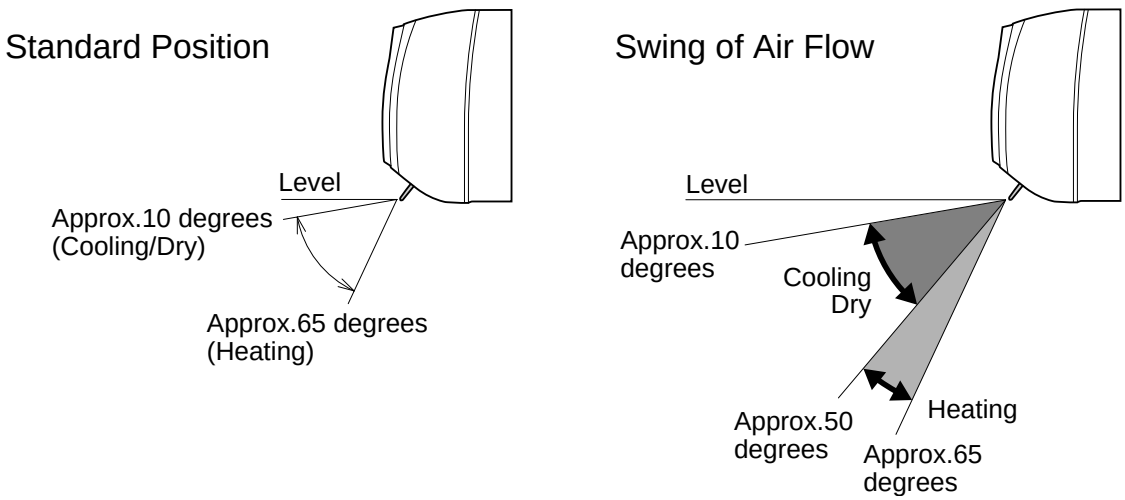
If air flow direction switch is pressed once, the vertical louver will move within the range of figures.

Fixing the flow direction

If air flow direction switch is pressed again, the vertical louver will be fixed and that position is memorized. From the next operation the louver will be set at previous position automatically.

Notes :

- In Swing Mode, the louver automatically moves up and down within the certain range, as the illustration below.
- There is two different ranges of louver swinging; one is of cooling & dry mode operation and the other is of heating operation.

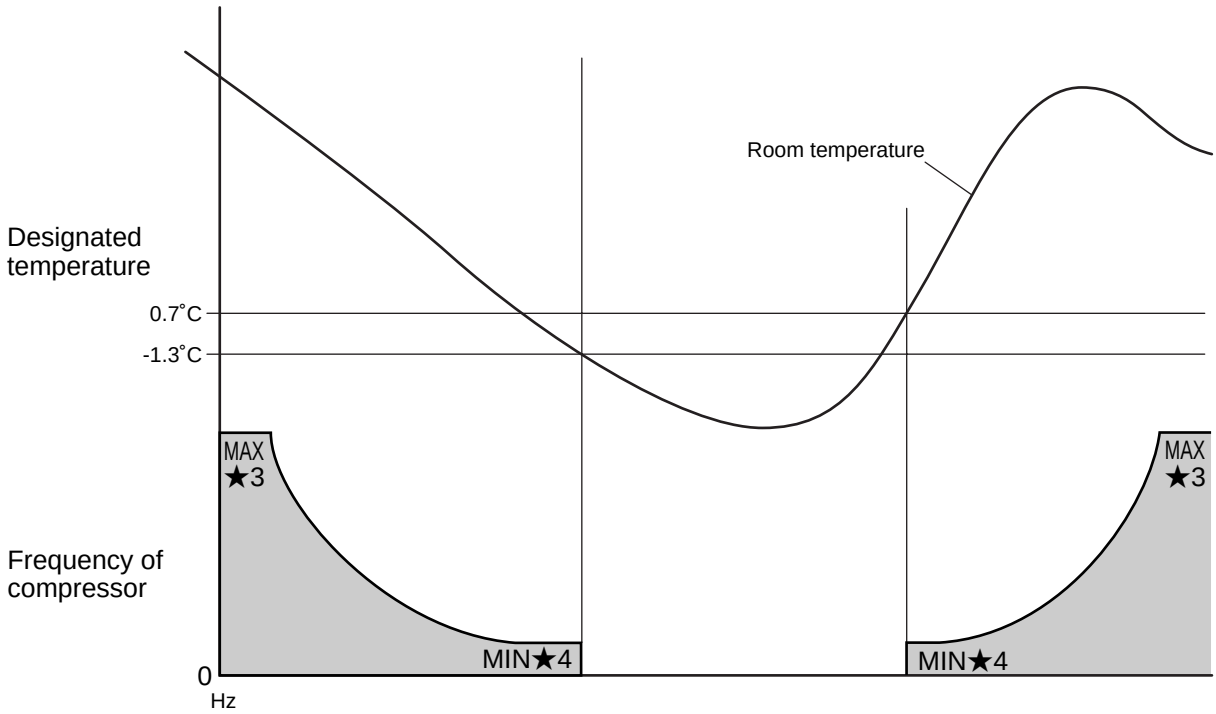


TIME DELAY SAFETY CONTROL FUNCTION - FOR PROTECTION OF COMPRESSOR

- Compressor will not restart, in any operation modes, for 3 minutes after its stop.
- Compressor does not stop during the first ★1 seconds of its operation even if the room temperature reaches to the designated temperature, except changing setting temperature.

COOLING MODE OPERATION

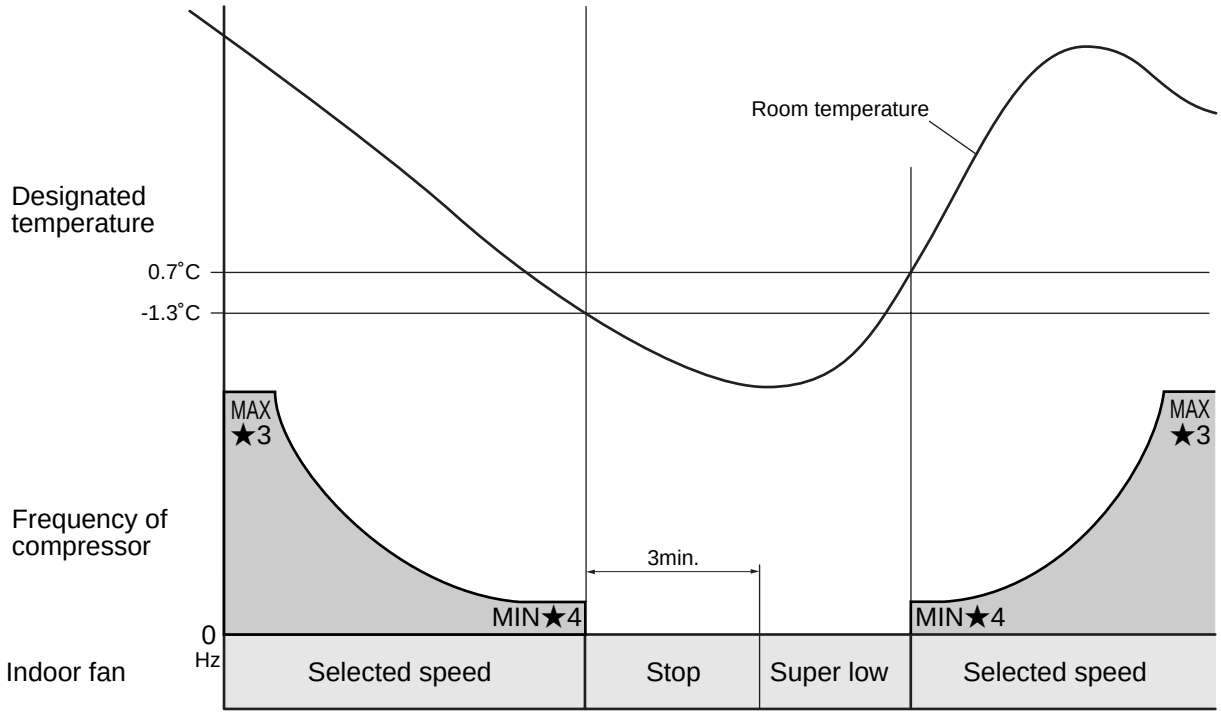
- The compressor will stop when operational frequency reached the minimum frequency and that condition has been kept for ★1 seconds and the room temperature becomes 1.3℃ lower than it was set.
- The compressor will re-start when room temperature becomes 0.7℃ higher than it was set.
- The operational frequency will be set every ★2 seconds of operation.
  The operational frequency setting will be calculated based on the deviation of the room temperature and the set temperature on one end and the deviation factor at the time of previous setting on another.



Model	★1	★2	★3	★4
S 1731	120	40	68.0Hz	32.0Hz
S 1735	180	60	72.0Hz	32.0Hz

DRY MODE OPERATION

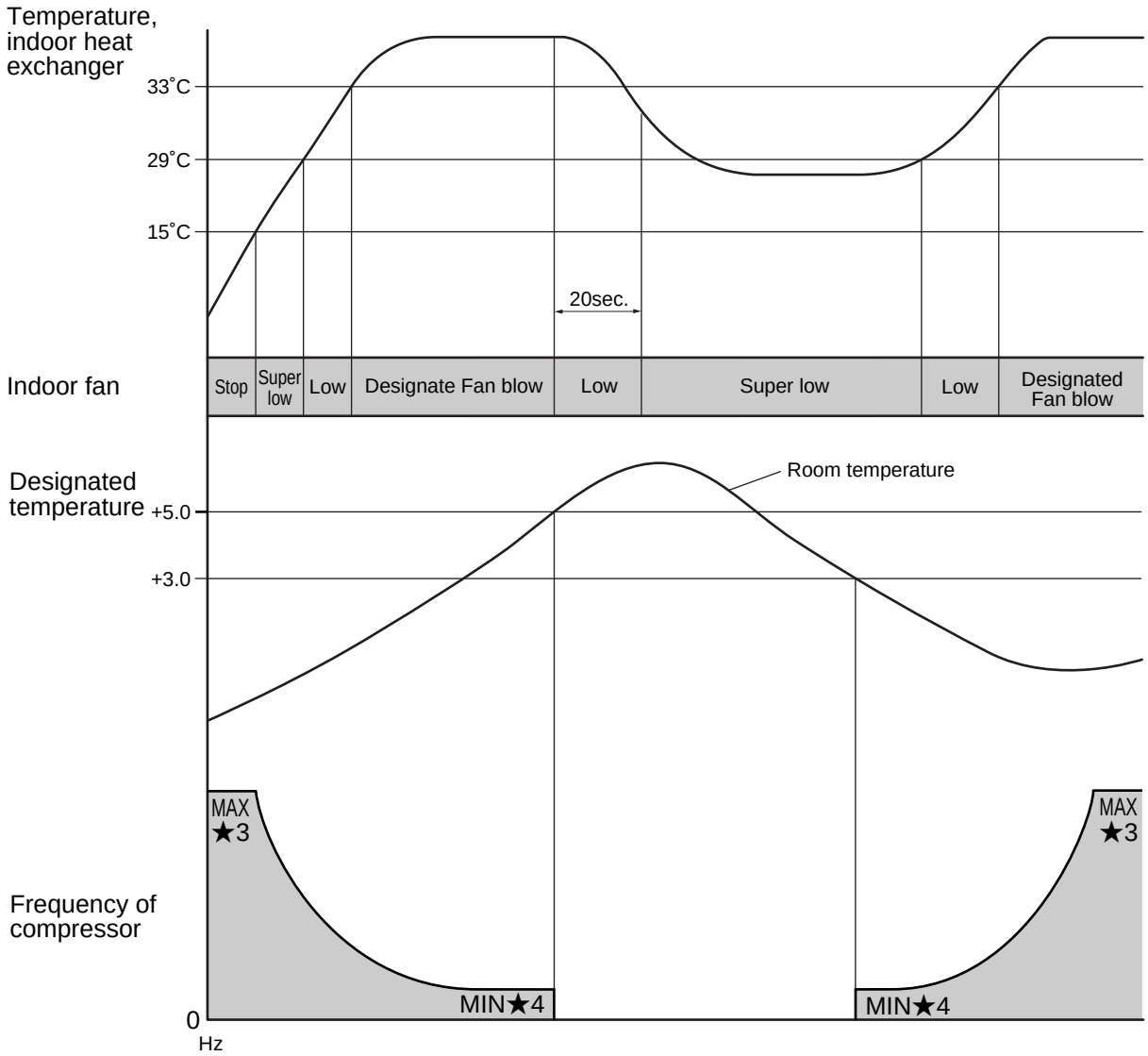
- The compressor will stop when operational frequency reached the minimum frequency and that condition has been kept for ★1 seconds and the room temperature becomes 1.3℃ lower than it was set.
- The compressor will re-start when room temperature becomes 0.7℃ higher than it was set.
- The operational frequency will be set every ★2 seconds of operation.
  The operational frequency setting will be calculated based on the deviation of the room temperature and the set temperature on one end and the deviation factor at the time of previous setting on another.



Model	★1	★2	★3	★4
S 1731	120	40	68.0Hz	32.0Hz
S 1735	180	60	72.0Hz	32.0Hz

HEATING MODE OPERATION

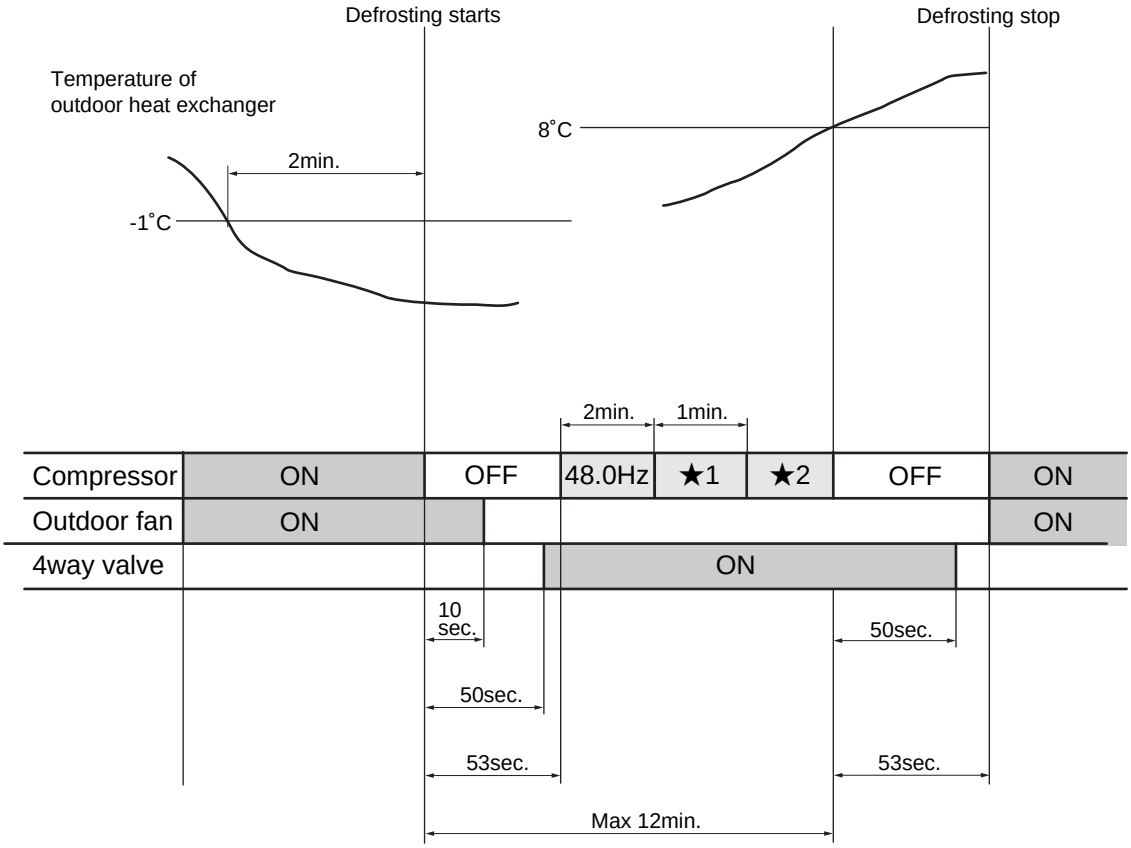
- The compressor will stop when operational frequency reached the minimum frequency and that condition has been kept for ★1 seconds and the room temperature becomes 5.0℃ higher than it was set.
- The compressor will re-start when room temperature becomes 3.0℃ higher than it was set.
- The operational frequency will be set every ★2 seconds of operation.
  The operational frequency setting will be calculated based on the deviation of the room temperature and the set temperature on one end and the deviation factor at the time of previous setting on another.



Model	★1	★2	★3	★4
S 1731	120	40	74.0Hz	32.0Hz
S 1735	180	60	80.0Hz	32.0Hz

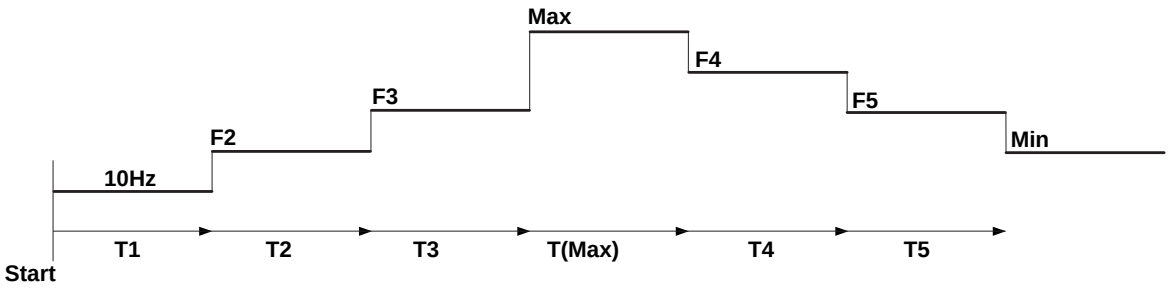
DEFROSTING OPERATION(FOR OUTDOOR UNIT HEAT EXCHANGER)

- Defrosting operation is controlled by the temperature of outdoor heat exchanger sensed by the thermistor and the timer switch.
- Defrosting operation starts when the both of the following conditions are met at the same time.
  a) 34 minutes' of continuous run of the compressor after the start of heating operation or after the completion of previous defrosting operation.
  b) the temperature of the outdoor heat exchanger stays lower than -1℃ continuously for two minutes.
- Defrosting operating is called off if either of the following conditions is met.
  a) The temperature of outdoor heat exchanger rises to 8℃ while 4-way-valve is ON.
  b) 12 minutes has passed since compressor turned OFF.



Model	★1	★2
S 1731	58.0Hz	74.0Hz
S 1735	58.0Hz	80.0Hz

COMPRESSOR STARTING SEQUENCE



Model	Frequency	F2	F3	Max	F4	F5	Min
	Time	T2	T3	T(Max)	T4	T5	-
S 1731	Cooling	48Hz	58Hz	68Hz	-	54Hz	32Hz
		1.5min.	1min.	30min.	-	limitless	-
	Heating	48Hz	58Hz	74Hz	-	64.7Hz	32Hz
		1.5min.	1min.	40min.	-	limitless	-
S 1735	Cooling	48Hz	58Hz	72Hz	-	66.7Hz	32Hz
		1.5min.	1min.	30min.	-	limitless	-
	Heating	48Hz	58Hz	80Hz	-	69.3Hz	32Hz
		1.5min.	1min.	40min.	-	limitless	-

T1: Forced rotating to reach 10Hz
F2,F3: Forced frequency for lubricant back

FOR YOUR SAFETY USE

IN: indoor unit OUT: outdoor unit

● For the safety and proper use and handling of the product, please read and follow the instructions carefully.

● The meaning of the marks below are as follows.

⚠ Danger	Improper use will cause the significant risk of death or serious injury of the user.
⚠ Warning	Improper use may cause the risk of death or serious injury of the user.

● Please refer the marks below.

⚠	Caution	⚠	High Voltage		Off the Plug	⊘	Prohibited
❗	Strict enforcement	⏚	Connect the earthing cable	♨	High Temperatare		

⚠ Danger

Check Point	● Be sure to take off the plug when servicing. It may cause the risk of electric shock.
	● If leakage of refrigerant occur in the installation, ventilate a room. If the leaked refrigerant is exposed fire, poisonous gas may be generated.
	● Boosting capacitor make the control box assembly (OUT unit) high voltage. Make the capacitor discharge enough when servicing. Otherwise will be struck by electricity.
	● Never remodel appliance. Use designated parts or accessories to avoid accidents.
	● In case of gas leakage, not only refill the required amount of the refrigerant gas but also find out the gas leakage point and mend it. If the service work has to be suspended before mending the leakage points, be sure to collect the refrigerant gas in the outdoor unit by using pump then fasten the service ports to avoid any further leakage. Poisonous gas may be generated when the leaked refrigerant is exposed to fire.
	● Clean the pins of the plug and insert the plug completely into the outlet.
	● Be sure to change the cable if it is damaged. Do not use damaged cable.
	● Do not use power supply cord extended or connected in halfway.

⚠ Warning

Check Point	● Be sure to put the units to earthing works.
	● Be sure to check the insulated resistance, more than 1M Ω .

※ The combinations of three LED indicators (ON/Flashing/OFF) provide the self-diagnosis information as most of them shown in the trouble shooting guide.

[Note1] Discharge electricity of the capacitor by making short circuit firstly. Then check the capacitor by tester. Be sure to set up the tester for the measurement of bigger resistance.

INDICATION LAMP

Micro computer self-diagnose the points of the troubles and inform it by the combination of the status (On, Flush, or Off) of three lamp indicators on the front panel of the indoor unit.

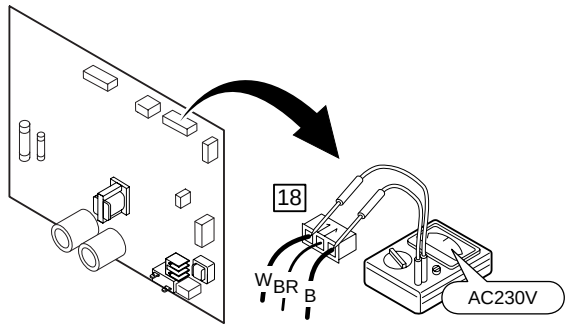
INDICATION LAMP POWER (green)	TIMER (yellow)	OPERATION (green)	ALARM INDICATION TIME	APPEARANCE, PORTION, PARTS SEEMED WRONG		METHOD OF CHECK (press the ON/OFF button of remote controller in case of reset)
OFF	OFF	OFF	—	—	POWER SUPPLY	check the plug inserted into the outlet and the power supply
					REMOTE CONTROL	emergency operation (display of remote controller is faint or not)
					IN FUSE(3.15A)	check the electric continuity by tester
					IN TERMINAL BLOCK	check the electric continuity by tester
					PCB (RECEIVER & DISPLAY)	emergency operation
IN, OUT do not work at all					IN PCB (MAIN)	other than described above
FLASHING	OFF	OFF	alarm indication appears immediately when press operation switch	short or open of sensor, temperature or incomplete insertion of connector	SENSOR, TEMP. ROOM	check the resistance by tester [see table 1]
FLASHING	ON	ON			SENSOR, TEMP. HEAT EXCHANGER	check the resistance by tester [see table 2]
ON	ON	FLASHING			SENSOR, TEMP. DEFROST	check the resistance by tester [see table 2]
ON	FLASHING	OFF			SENSOR, TEMP. OUTDOOR	check the resistance by tester [see table 2]
FLASHING	ON	OFF			SENSOR, TEMP. DISCHARGE	check the resistance by tester [see table 3]
OFF	OFF	FLASHING	normal lamp indication turn alarm when something is wrong with IN, OUT	error of transmission	MIS-WIRING (OUT-IN CONNECTING CABLE) OR RARE CONTACT	check the wiring connection and rare contact
IN, OUT don't work at all, and after 20 sec., operation lamp is flashing (2 min. in case of power on)					CURRENT FUSE . (12A) FUSING (ON THE OUT PCB (FILTER))	check the electric continuity by tester.[see fig. 2] (if it is no continuity, OUT controller assy should be replaced.)
FLASHING	OFF	FLASHING		CT disconnection	CUTTING OFF CT	change the OUT PCB (main)
OFF	FLASHING	OFF	—	sensor discharge operate because temperature of discharge tube beyond 100°C, or sensor discharge is bad quality	GAS LEAKAGE	check the point of leakage (discharge temperature rise in case of small leakage), measure the pressure of compressor during fixed operation (emergency and test operation)
30 ～ 40 min. later after compressor start, the yellow lamp is flashing and IN, OUT stop running					VALVE, SERVICE IS CLOSED	check the valve by eyes
					PIPE	check by eyes
					SENSOR, TEMP. DISCHARGE	check the resistance by tester [see table 3]
FLASHING	FLASHING	OFF	once stop running with power lamp lighting when something is wrong with IN, OUT, and start running again after 6 ～ 26 min. later after that in case of reoccurrence, alarm indication appears	protective action against excessive AC current detection	UNREASONABLE OPERATION UNDER OVERLOAD	check the place of installation (blockage of air inlet & outlet of IN, OUT) check the excessive gas
					MOMENTARY STOP OF POWER (IN CASE OF LIGHTNING)	check the movement by reoperation
					DROP OF POWER VOLTAGE	check the power voltage (230V)
FLASHING	FLASHING	ON		protective action against excessive DC current detection or abnormal revolution of compressor	UNREASONABLE OPERATION UNDER OVERLOAD	check the place of installation (blockage of air inlet & outlet of IN, OUT) check the excessive gas
or					MOMENTARY STOP OF POWER (IN CASE OF LIGHTNING)	check the movement by reoperation
FLASHING	OFF	ON			DROP OF POWER VOLTAGE	check the power voltage (230V)
					OUT PCB (MAIN)	If the same alarm lamp will remain lit during operation even after disconnecting the connector of the lead cable to the compressor, it implies the defect of the OUT controller assy.
					COMPRESSOR LOCKING	If the same alarm lamp will remain lit during operation even after replacing the OUT controller assy, it implies the defect of the compressor.
ON	FLASHING	FLASHING	—	rise of temperature (above 100°C) of power module	SHORT CYCLE (INSUFFICIENT AIR CIRCULATION) UNREASONABLE OPERATION UNDER OVERLOAD	check the place of installation (blockage of air inlet & outlet of IN, OUT)
FLASHING	FLASHING	FLASHING	—	in case of heating operation, a rise of temperature (above 62°C) of IN heat exchanger or less quantity of IN blow	FILTER IS CHOKED	check by eyes and clean it
in case of heating operation, after a few minutes operation, all lamps are flashing and IN, OUT stop running					SENSOR, TEMP. HEAT EXCHANGER	check the resistance by tester [see table 2]
					IN PCB (MAIN)	check the voltage between blue and yellow in connector [see fig.3] if it is not AC 110V ～ 230V, IN PCB (main) should be replaced
					FAN MOTOR (IN)	other than described above
FLASHING	ON	FLASHING	—	accident of controller	IN PCB (MAIN)	15 sec. later after main power on, if alarm indication appears, IN PCB (main) should be replaced
					OUT PCB (MAIN)	60 sec. later after start running through remote controller, if alarm indication appears, OUT controller assy should be replaced
—	—	—	—	not cool down not warm up	GAS LEAKAGE	check the point of leakage measure the pressure of compressor during fixed operation (emergency and test operation)
					SENSOR, TEMP. ROOM	check the resistance by tester [see table 1]
					SENSOR, TEMP. HEAT EXCHANGER	check the resistance by tester [see table 2]
					FAN MOTOR (IN)	check the voltage between blue and yellow in connector [see fig.3] if it is AC 110V ～ 230V, IN fan motor should be replaced
					4-WAY VALVE	check the resistance by tester [see fig.4]
					SHORT CYCLE (INSUFFICIENT AIR CIRCULATION)	check the blockage of air inlet & outlet of IN, OUT
—	—	—	—	water leakage	DRAINAGE	check the drain hose by eyes (it might be folded or choked)
					MIS-INSTALLATION	check the IN whether lean or not
—	—	—	—	nasty smell	FILTER IS CHOKED	check by eyes and clean it
					NO USE FOR A LONG TIME	
					NASTY SMELL (CIGARETTE, FURNITURE, ETC.)	use deodorizer
—	—	—	—	louver doesn' t work	LOUVER MOTOR	check the resistance by tester [see fig.5]

※In this table IN means indoor unit and OUT means outdoor unit.

CHECK A FOLLOWING STEPS

〔fig. 1〕 Voltage of OUT fan motor on the OUT PCB(main)

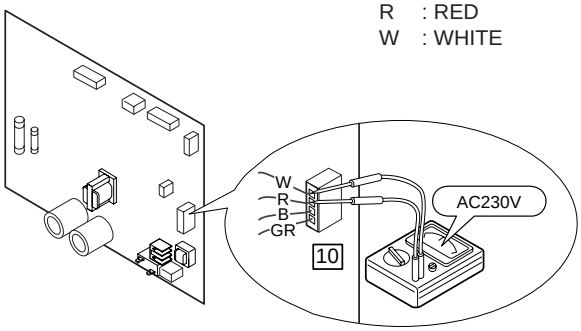
B : BLACK
BR : BROWN
W : WHITE



Measure the voltage between white and black in the connector.

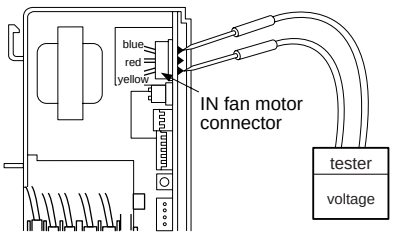
〔fig. 2〕 Continuity of current fuse on the OUT PCB(filter)

B : BLACK
GR : GRAY
R : RED
W : WHITE



While the operation switch is turned on, the function of control board is considered normal as long as the voltage difference shows AC230V when the voltage is measured between the white and the black terminals, and between the black and the grey terminals respectively.

〔fig. 3〕 Voltage of IN fan motor on the IN PCB (main)

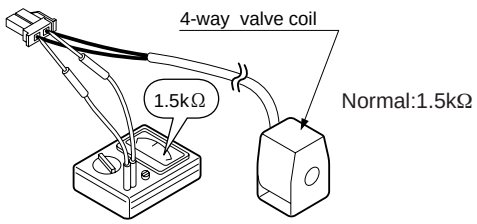


attention electric shock

Normal:110V ～ 230V

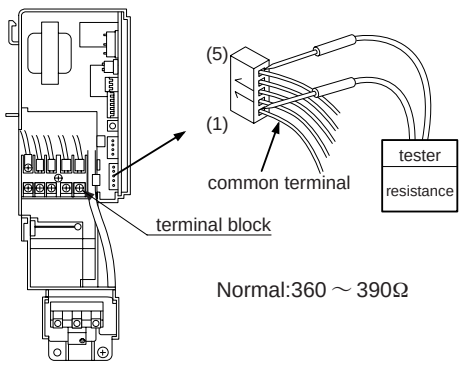
《Check the IN PCB(main)》
Measure the voltage between the connector pins in the back of IN PCB(main).

〔fig.4〕 Resistance of 4-way valve coil



※ Take off the connector and check the Resistance of 4-way valve coil.

〔fig. 5〕 Resistance of IN louver motor



Normal:360 ～ 390Ω

Take off the connector and check the resistance between the common terminal and each terminal.

ELECTRIC CHARACTER

〔table 1〕 Sensor, temp. room

Temp. (°C)	Resistance (kΩ)
10	48
15	37
20	29
25	23
30	18
35	15

〔table 2〕 Sensor, temp. defrost
Sensor, temp. heat exchanger
Sensor, temp. outdoor

Temp. (°C)	Resistance (kΩ)
0	31
5	24
10	19
15	15
20	12
25	10
30	8
35	7

〔table 3〕 Sensor, temp. discharge

Temp. (°C)	Resistance (kΩ)
10	1,130
20	660
35	320
40	250
50	160
80	50

〔table 4〕 Sensor, temp. power module

Temp. (℃)	Resistance (k Ω)
10	210
30	79
50	33
70	15
90	8
110	4

DISPLAY OF ERRORS IN THE PAST

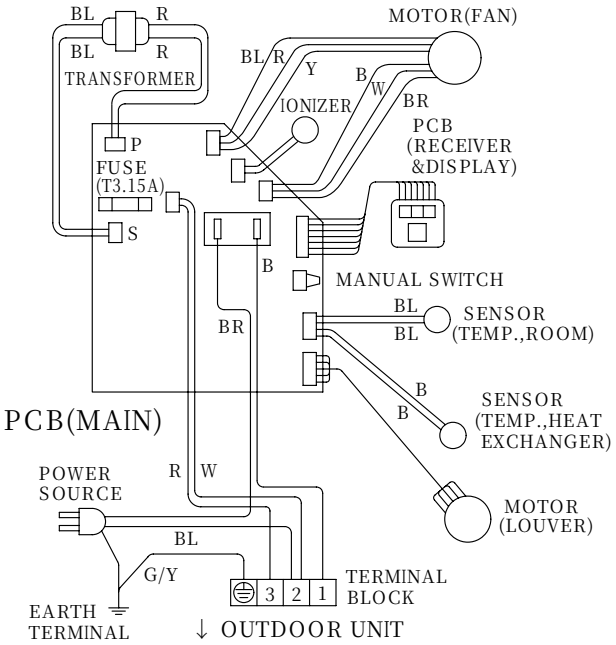
- Push emergency operation switch and hold for more than 10 seconds while unit is not operated and release the switch when you hear three beeps.
  You will see the latest error by indication lamp.
  Further pushing of the switch will make the error indication by reversing cycle up to four latest errors in the past.
  At any stage, the error indication will disappear after 30 seconds.

Hold switch for more than 10 seconds	Three beeps	The latest error indication
Another push	Two beeps	The second latest error indication
Another push	Three beeps	The third latest error indication
Another push	Four beeps	The fourth error indication
Another push	One beep	Indication lamp goes off

WIRING DIAGRAM

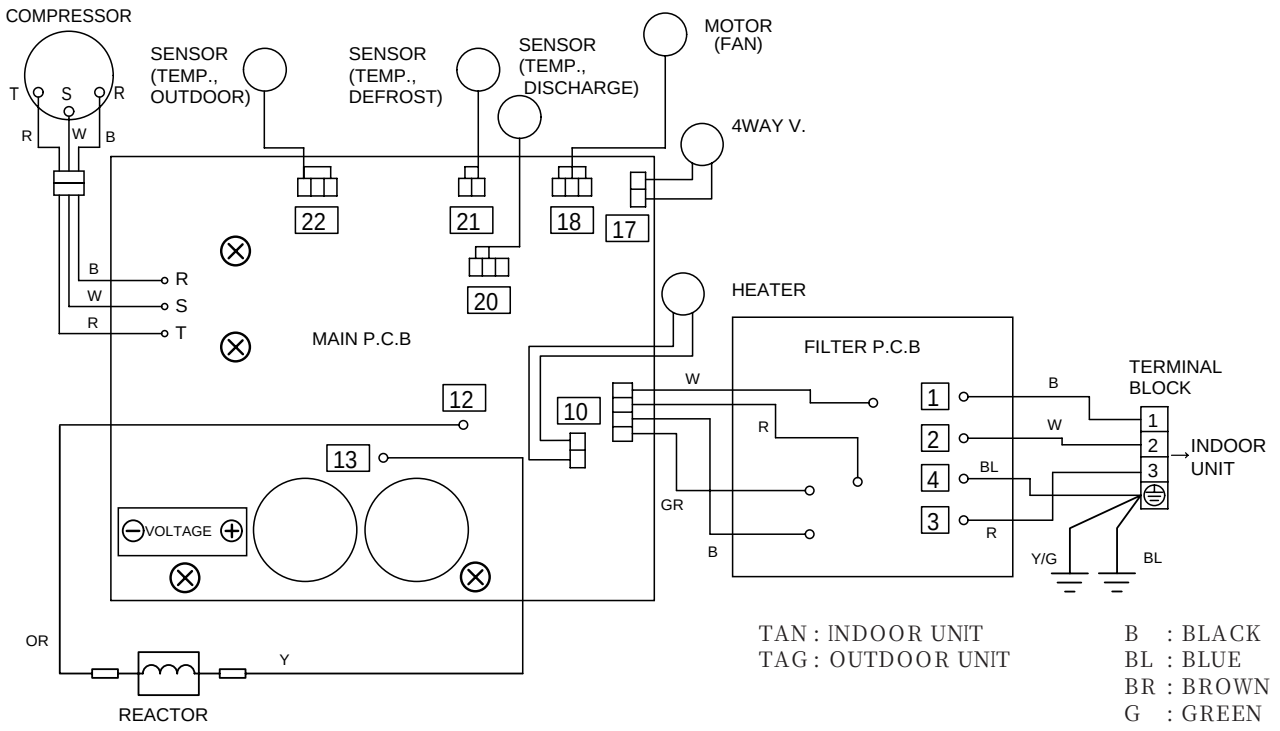
S 1731 Indoor

S 1735 Indoor



S 1731 Outdoor

S 1735 Outdoor



TAN : INDOOR UNIT
TAG : OUTDOOR UNIT

B : BLACK
BL : BLUE
BR : BROWN
G : GREEN
GR : GRAY
OR : ORANGE
P : PINK
R : RED
W : WHITE
Y : YELLOW

REMARKS FOR GAS PRESSURE CHECK AND CHARGING

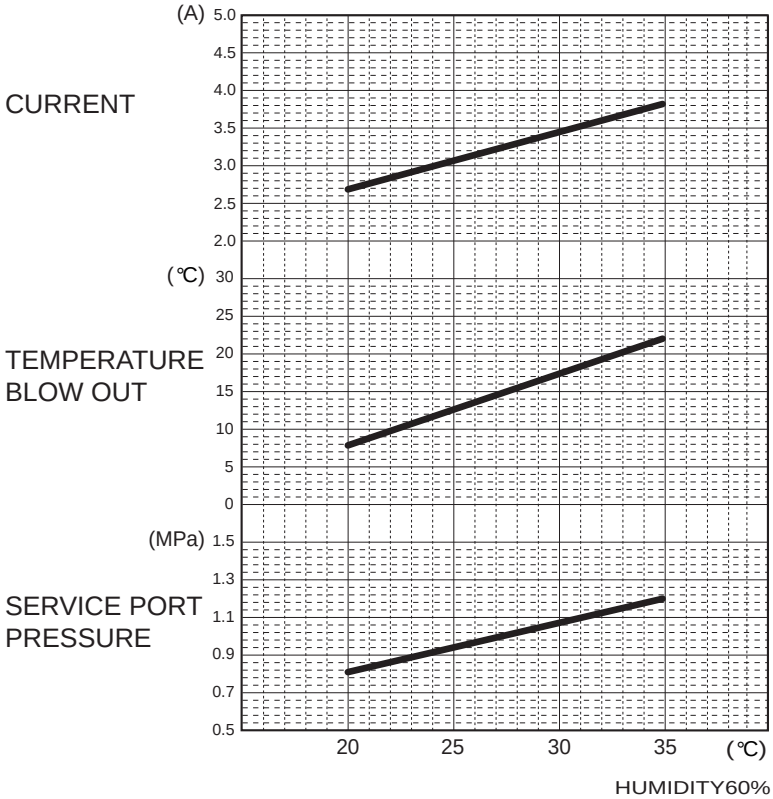
Gas pressure is to be measured at TEST OPERATION for cooling or EMERGENCY OPERATION for heating. (It is operated for 30 minutes at fixed frequency.)
If you find substantial diffrence in performance compared with PERFORMANCE CURVE as shown next, recharge the refrigerant.
(In order to avoid excessive charging, purge all the remaining refrigerant first and then evacuate the unit completely with vacuum pump and finally apply rated volume charging of refrigerant.)
Charging of refrigerant should be done by cooling operation, because the pressure at service valve will be too high at heating cycle, then the heating performance characteristics must be checked by restarting of heating operation.

Piping size	Liquid side	6.35mm
	Gas side	9.52mm
Max. tube length		15m
Max. height difference		10m

PERFORMANCE CURVE DIAGRAM

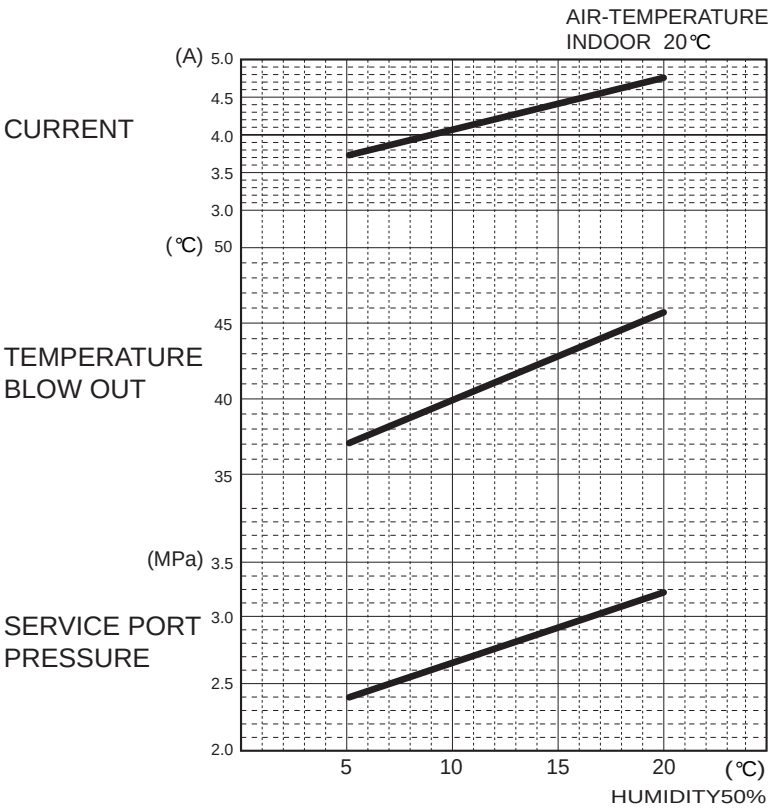
S 1731

COOLING



AIR TEMPERATURE INDOOR-OUTDOOR

HEATING

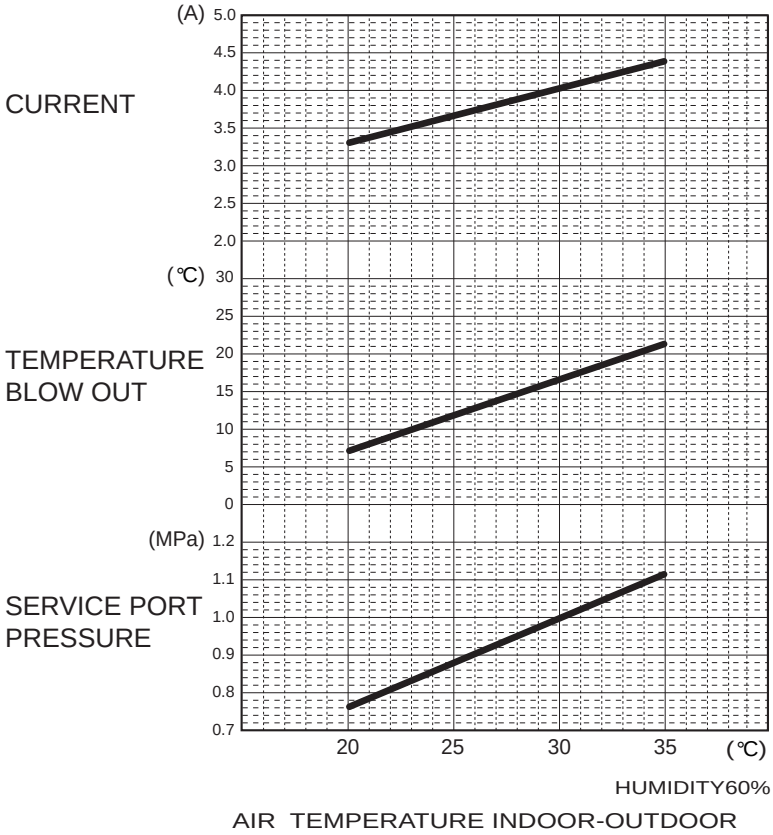


AIR TEMPERATURE-OUTDOOR

PERFORMANCE CURVE DIAGRAM

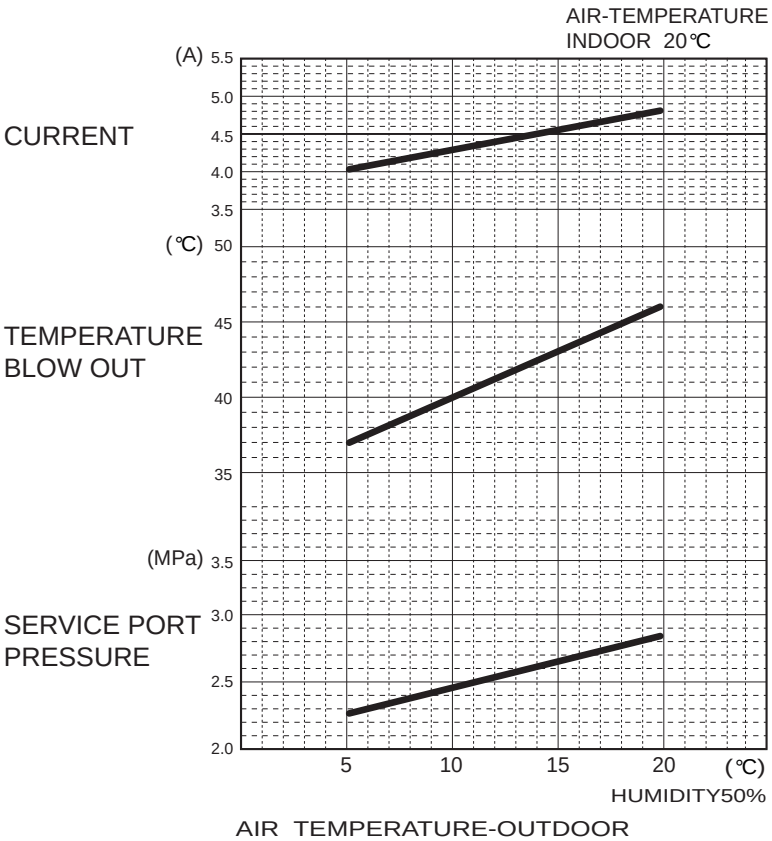
S 1735

COOLING



AIR TEMPERATURE INDOOR-OUTDOOR

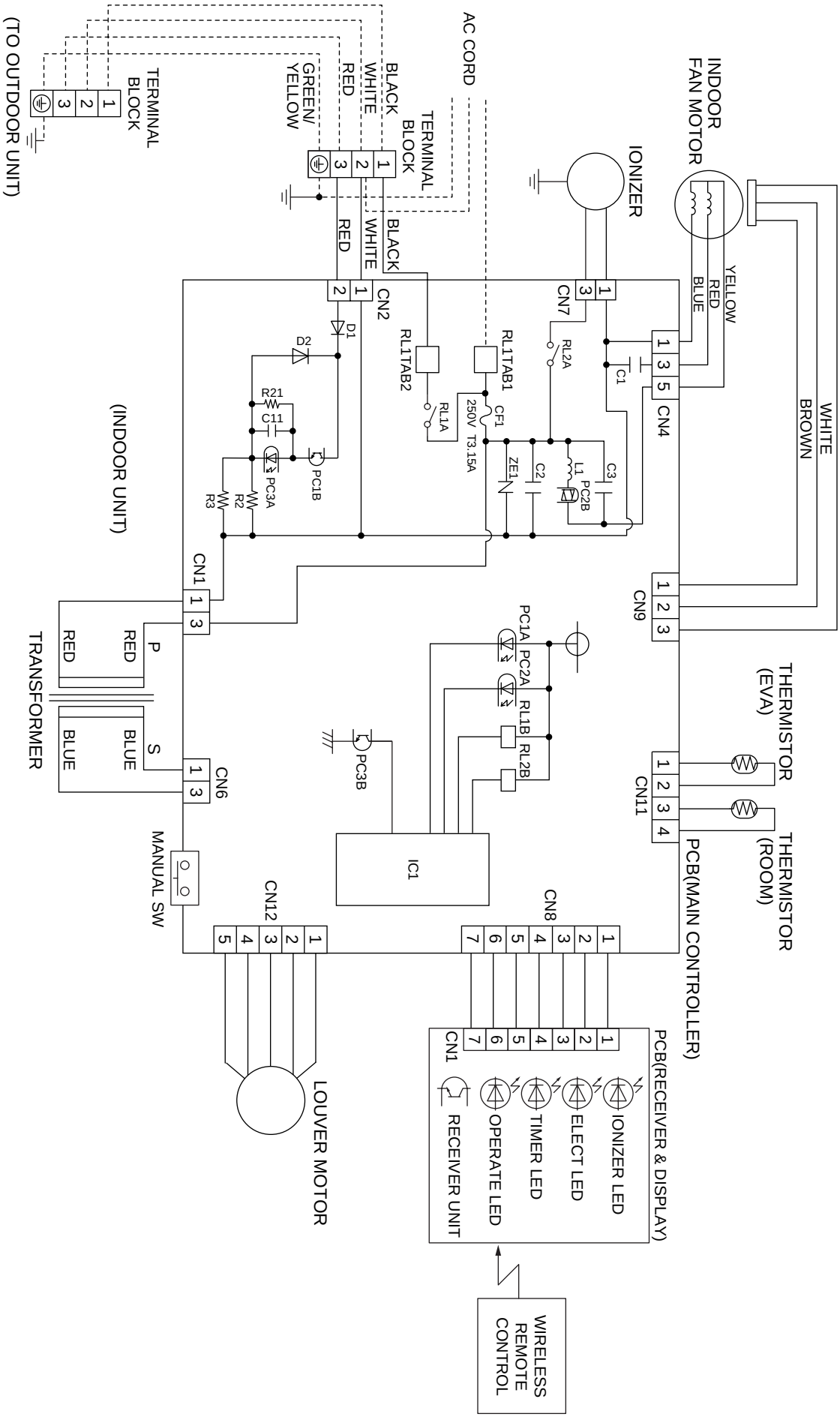
HEATING



AIR TEMPERATURE-OUTDOOR

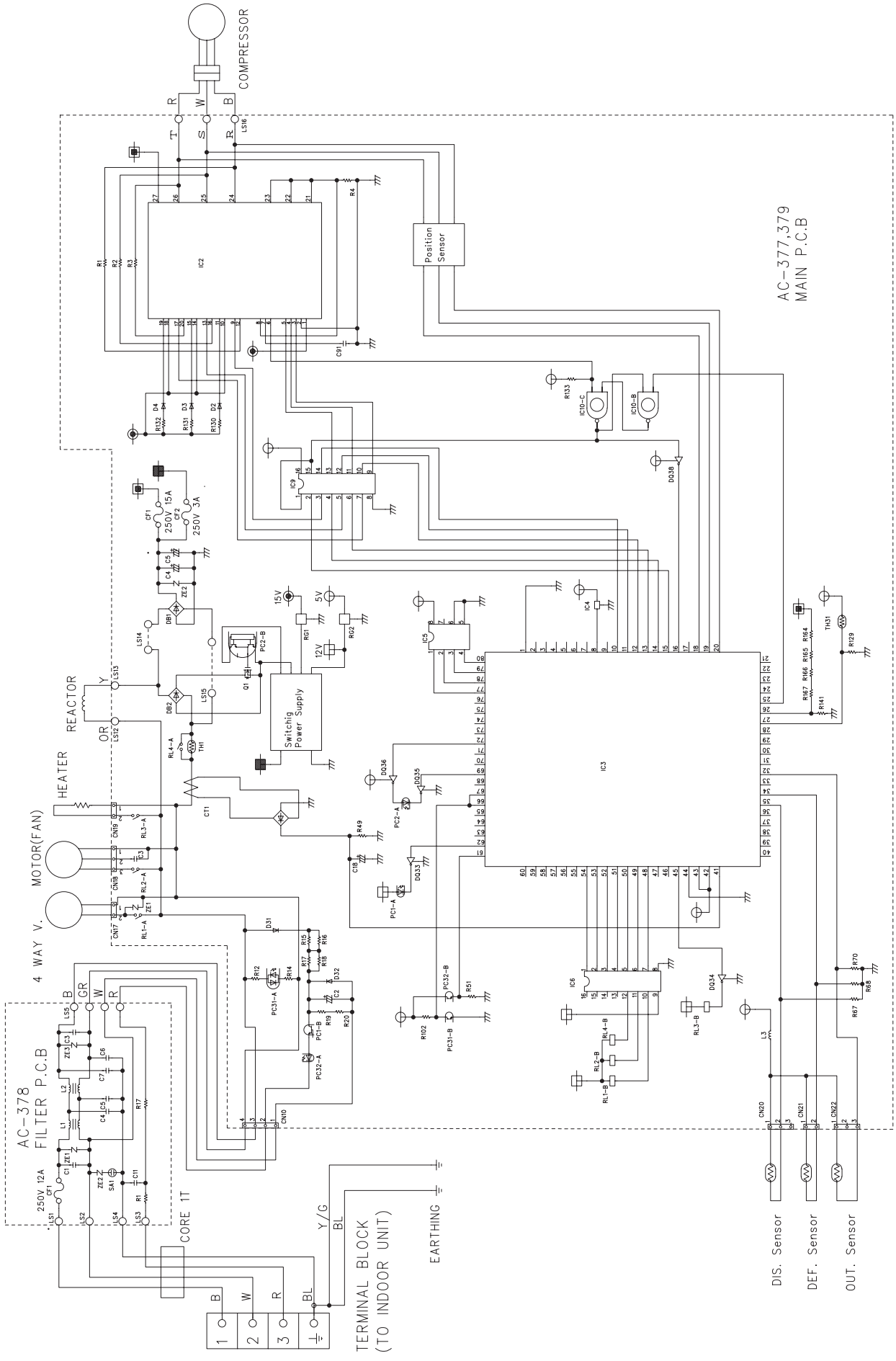
ELECTRIC CIRCUIT DIAGRAM

S 1731 Indoor, S 1735 Indoor



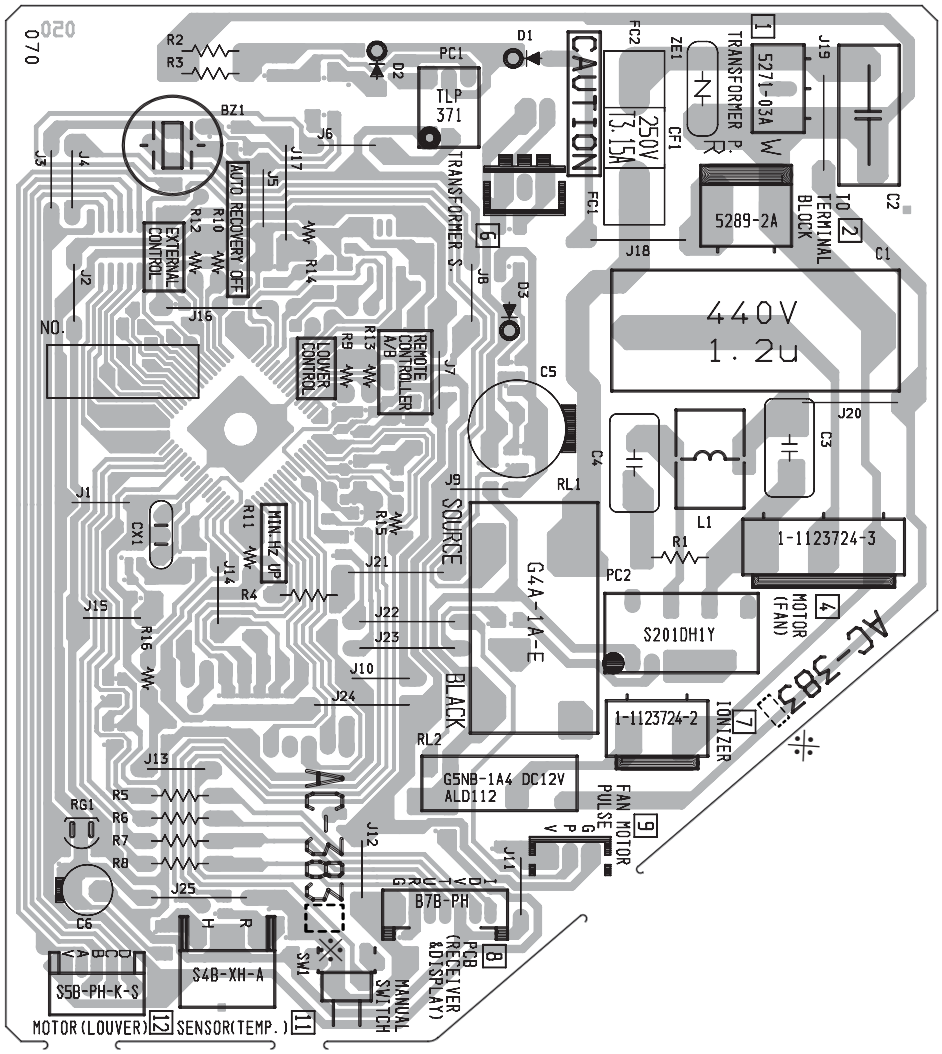
ELECTRIC CIRCUIT DIAGRAM

S 1731 Outdoor , S 1735 Outdoor



S 1731 Indoor (Top View)

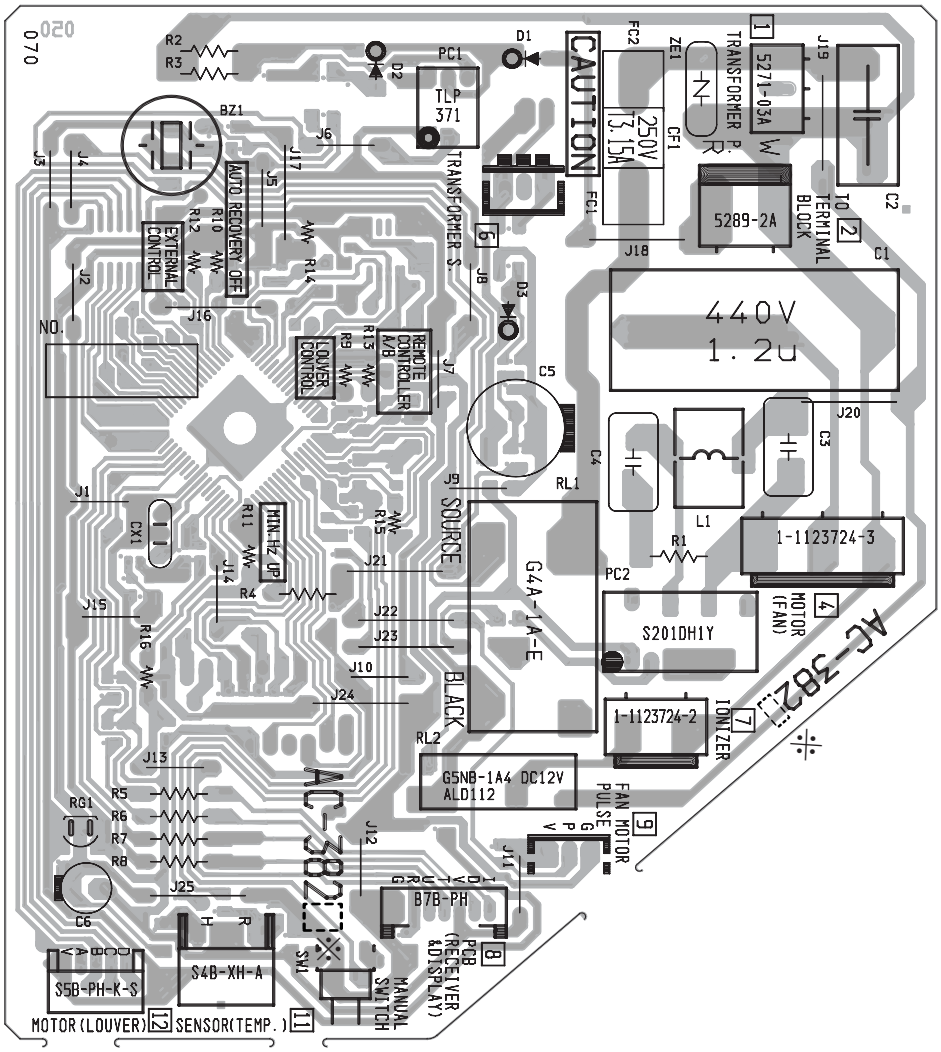
PCB(AC-383)



※ On the PCB a letter of alphabet may be printed in ☐ .
☐ depends on the version.

S 1735 Indoor (Top View)

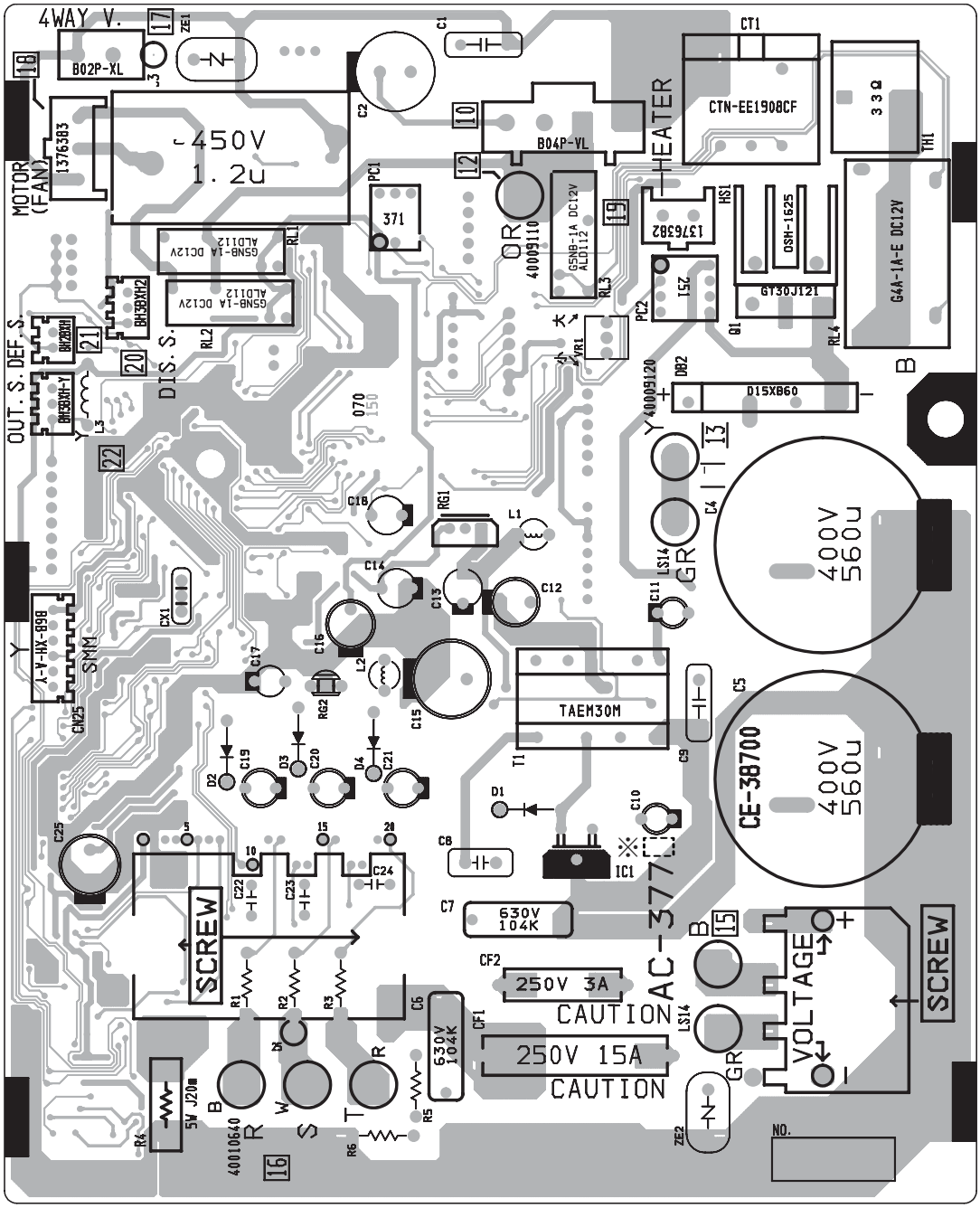
PCB(AC-382)



※ On the PCB a letter of alphabet may be printed in ☐ .
☐ depends on the version.

S 1731 Outdoor (Top View)

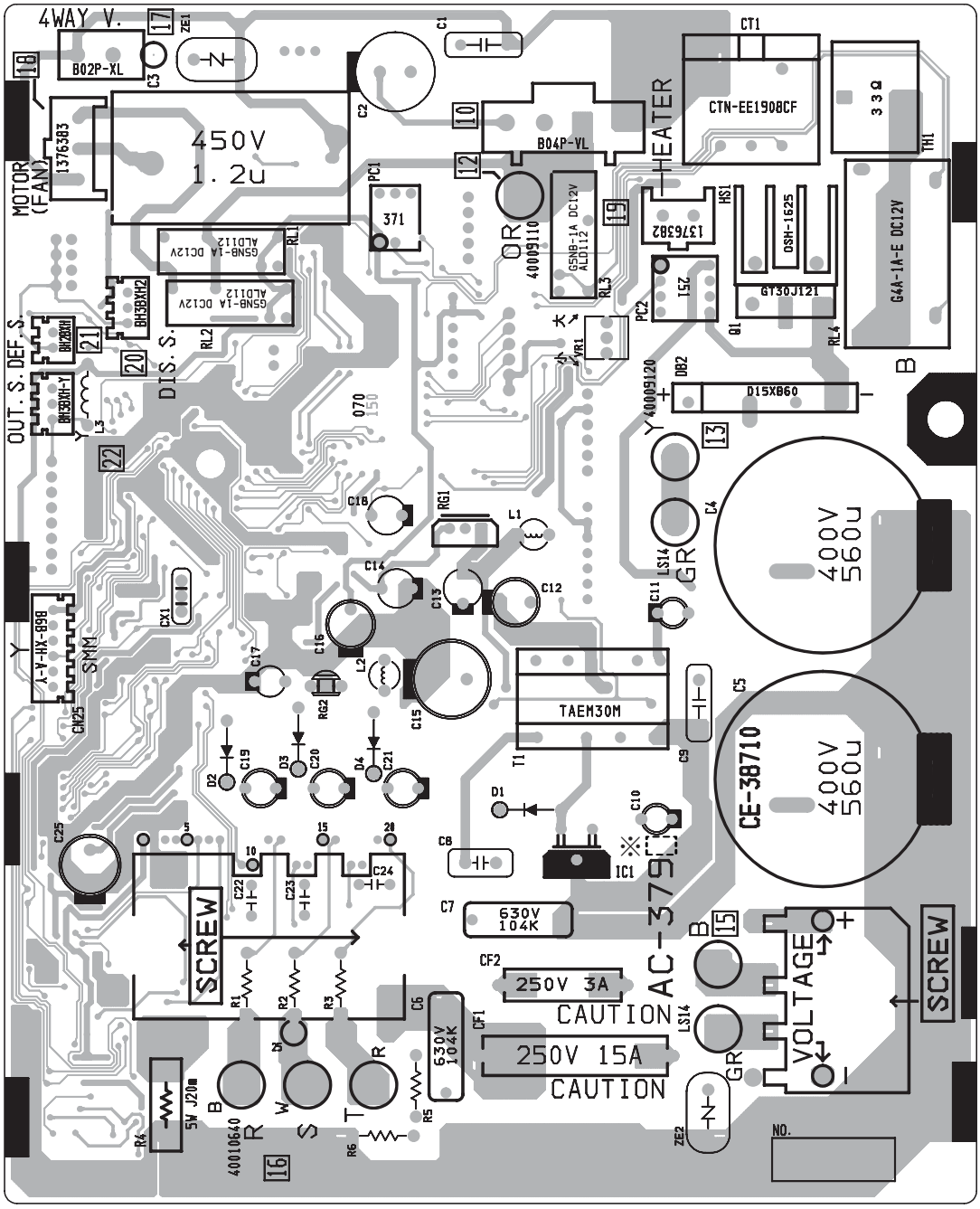
PCB(AC-377)



※ On the PCB a letter of alphabet may be printed in ⬚.
⬚ depends on the version.

S 1735 Outdoor (Top View)

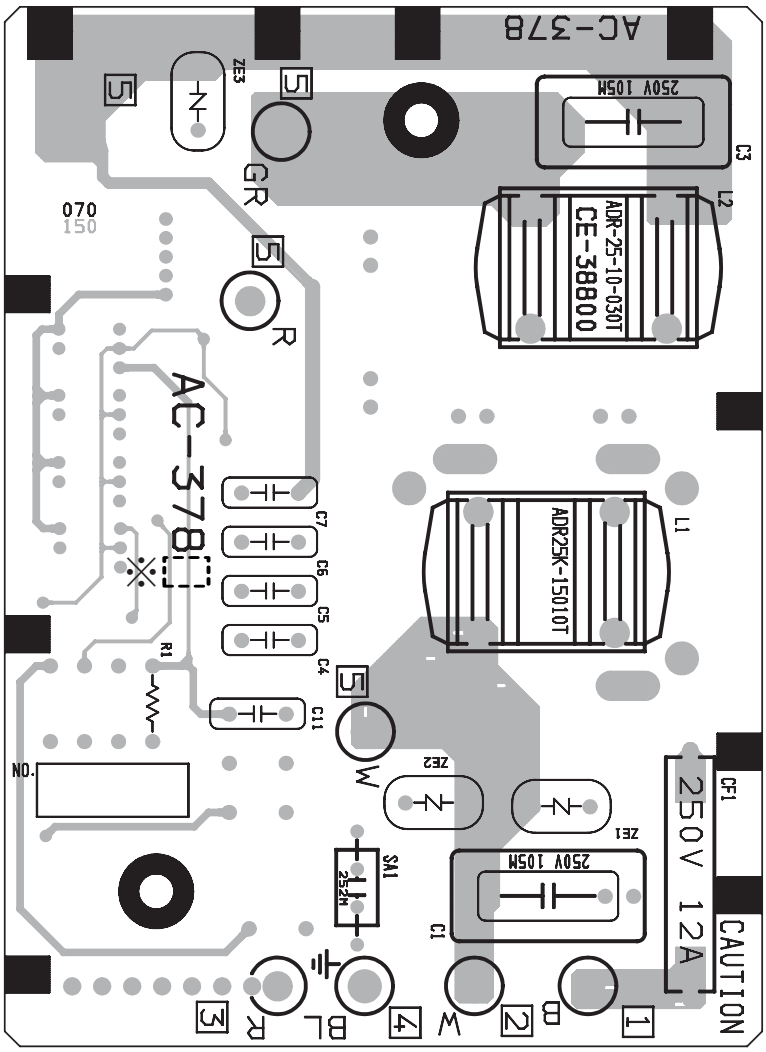
PCB(AC-379)



※ On the PCB a letter of alphabet may be printed in ⬚.
⬚ depends on the version.

S 1731 Outdoor, S 1735 Outdoor

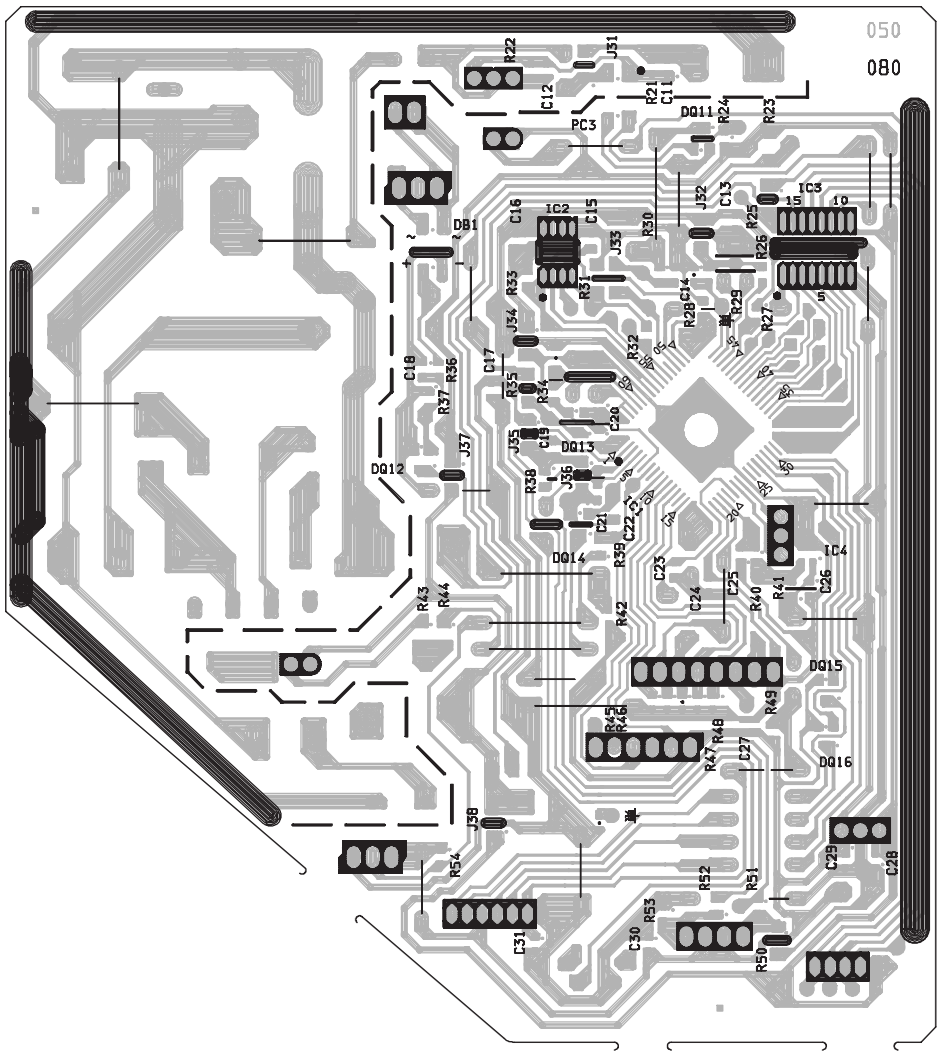
FILTER PCB(AC-378)



※ On the PCB a letter of alphabet may be printed in ⬚.
⬚ depends on the version.

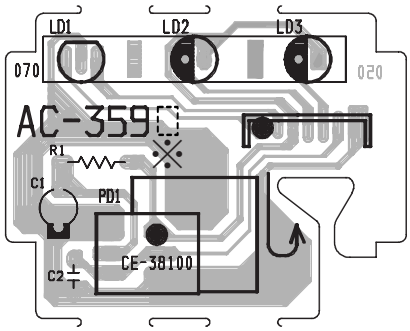
S 1731 Indoor, S 1735 Indoor (Bottom View)

PCB(AC-383, AC-382)



S 1731 Indoor, S 1735 Indoor

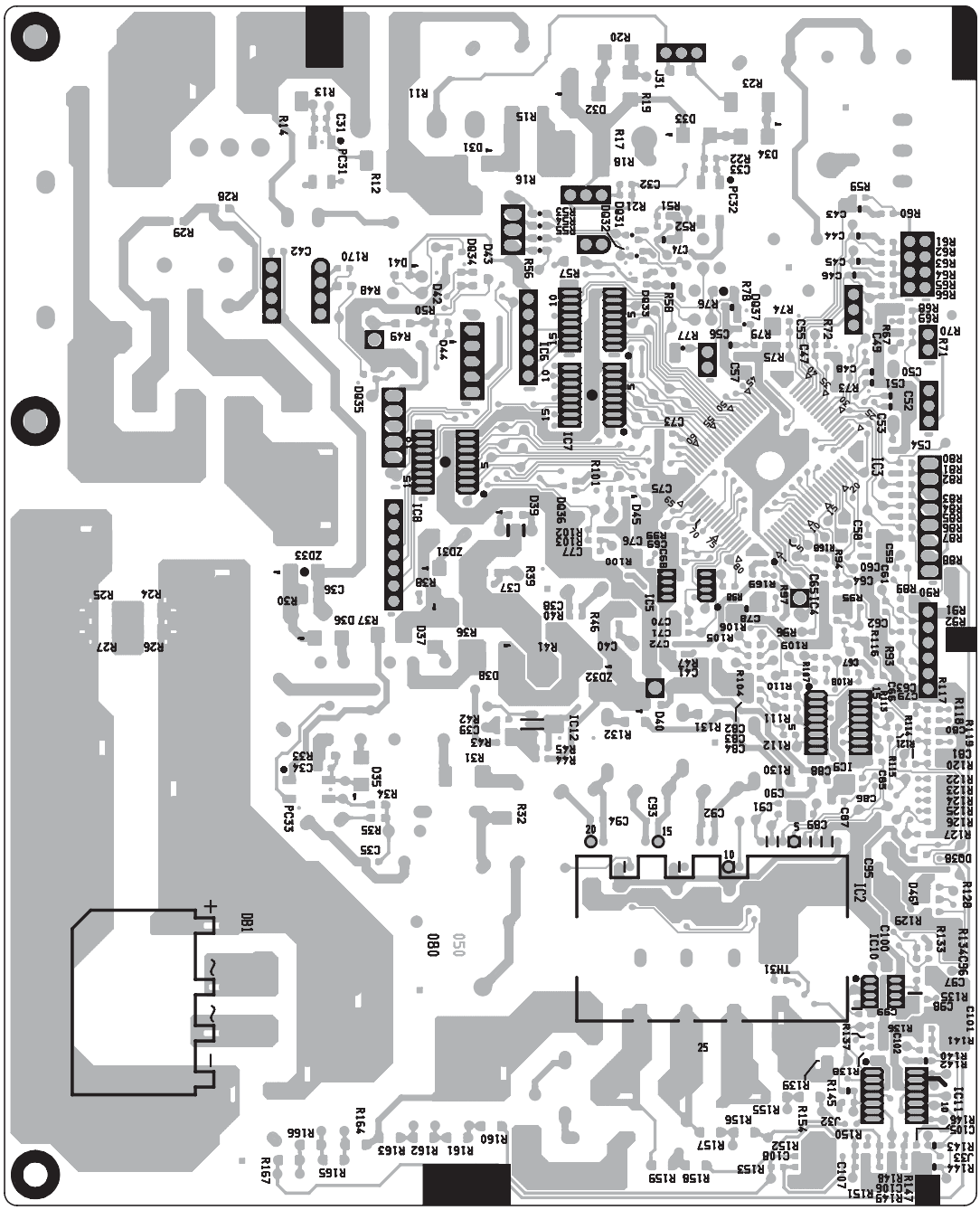
PCB RECEIVER & DISPLAY(AC-359)



※ On the PCB a letter of alphabet may be printed in ⬚ .
⬚ depends on the version.

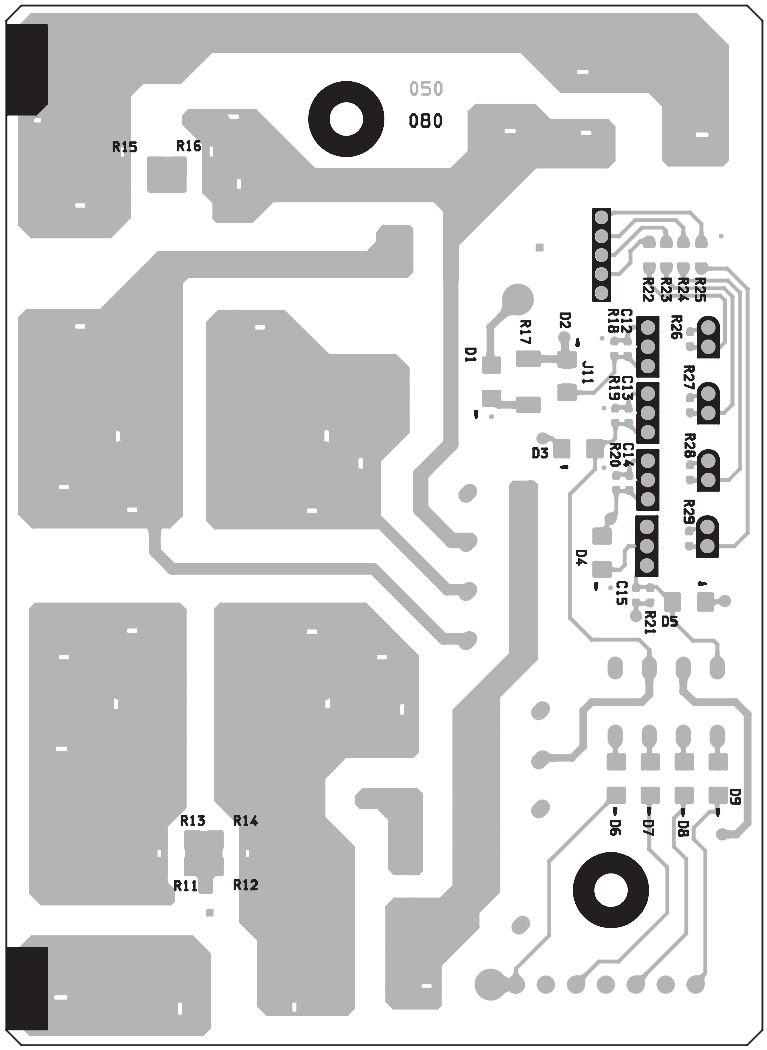
S 1731 Outdoor, S 1735 Outdoor (Bottom View)

PCB(AC-377, AC-379)



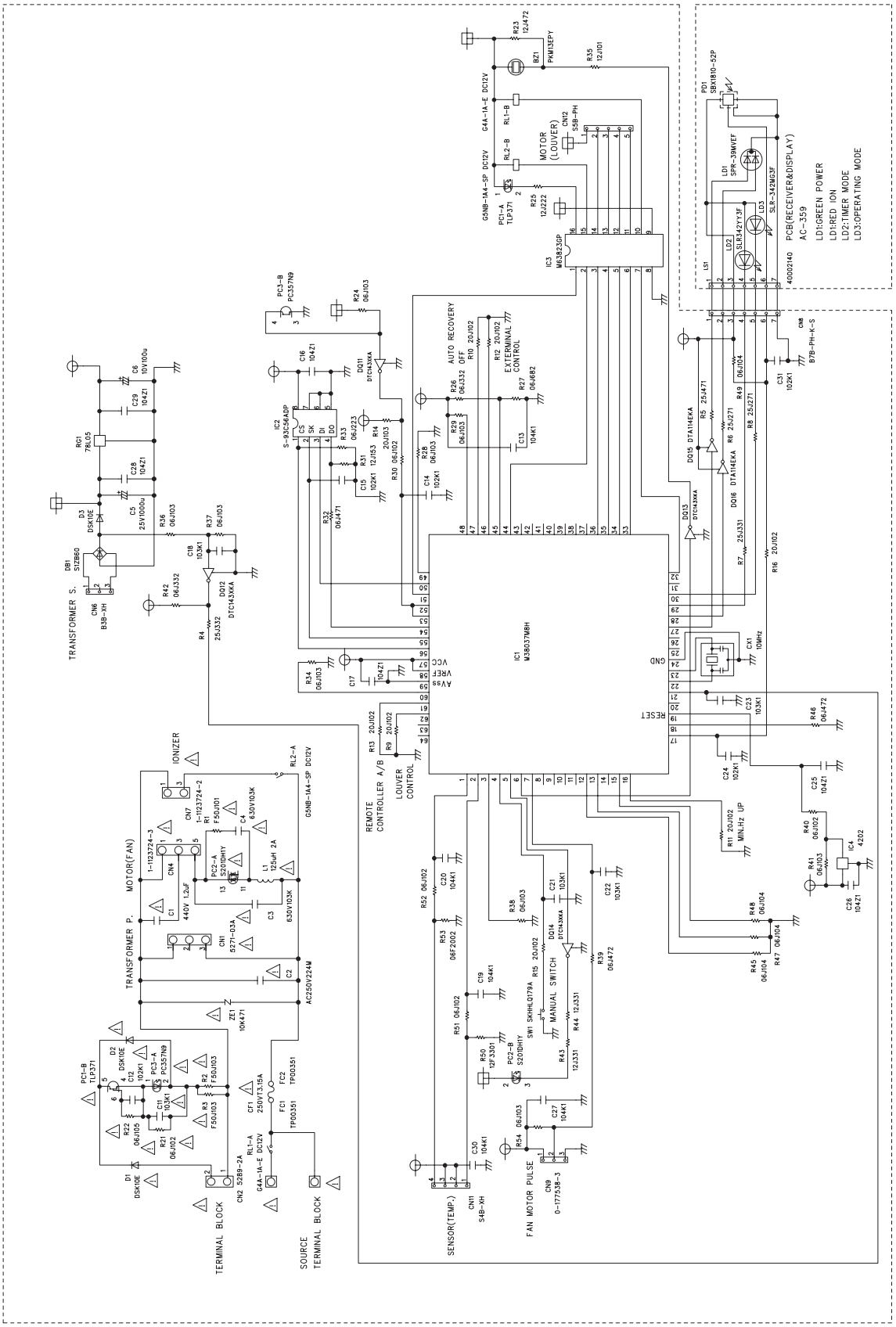
S 1731 Outdoor, S 1735 Outdoor (Bottom View)

FILTER PCB(AC-378)



S 1731 Indoor, S 1735 Indoor

SCHEMATIC DIAGRAM(AC-383, AC-382, AC-359)

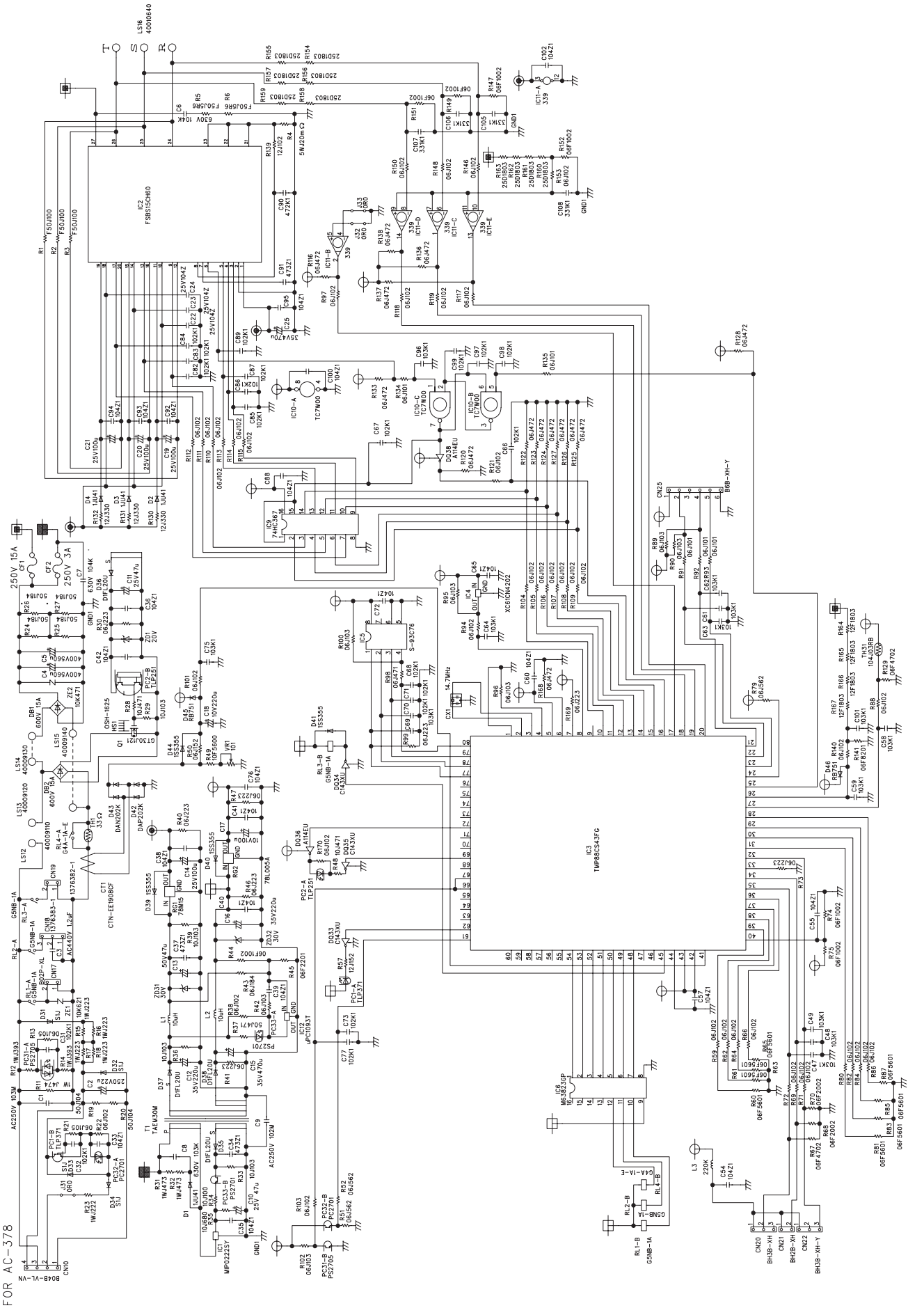


Attention

Replacement parts with special safety characteristics are indentified by △showing on this schematic diagram. Replace these critical components with recommended replacement parts.
Don't degrade the safety of this set through improper servicing.
Servicepersonal is to makeleakage-current of resistance measurements to determine that exposed parts are acceptable insulated from the supply circuit before returning the appliance to the customer.

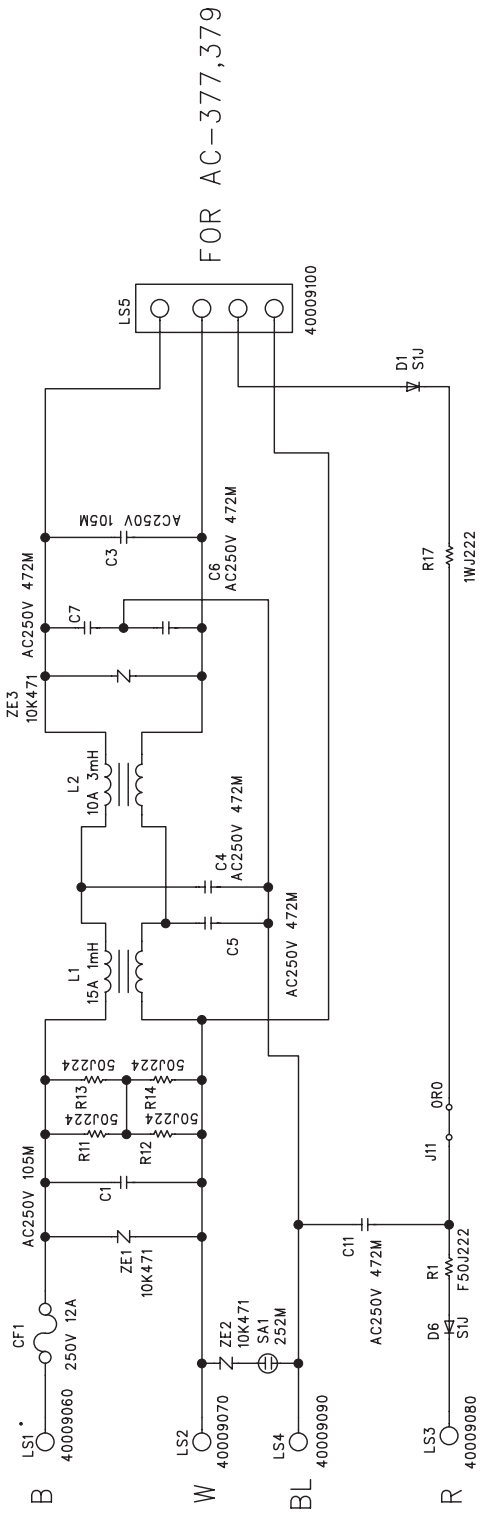
S 1731 Outdoor, S 1735 Outdoor

SCHEMATIC DIAGRAM(AC-377, AC-379)



S 1731 Outdoor, S 1735 Outdoor

FILTER PCB(AC-378)



S 1731 Indoor, S 1735 Indoor

PCB ASSEMBLY(MAIN)

AC-382,383					
ALTERNATIVE		REF. No.	PART NAME	PART NUMBER	Q'TY
		PB1	PCB	CE-374 C0 for A C-382	1
		PB1	PCB	CE-374D0 for A C-383	1
		IC1	Micro Proccer	M38039FFFP	1
OR				M38037M8H-201KP	
		IC2	EEPR OM	S-93L C56ADFJ-TB-S	1
OR				BR93LC56RF-WE2	
		IC3	Transistor Array	M63823 GP-200D	1
		IC4	Low Voltage Detector	XC61 CN4202NR	1
	!	PC1	Photo Coupler	TLP371	1
	!	PC2	Solid State Relay	S201DH1Y	1
	!	PC3	Photo Coupler	PC357N9	1
		DQ11,12,13,14	Transistor	DT C143XKAT146	4
		DQ15,16	Transistor	DTA114EKAT146	2
		RG1	Voltage Regulator	AN78L05-TA	1
OR				NJM78L05A-T3	
		DB1	Bridge Diode	S1ZB60-4072	1
	!	L1	Innductor	SN8D-500	1
		CX1	Ceramic Resonator	CS TLA10M0T55-A0	1
		BZ1	Buzzer	PKM13EPY-4000-A0	1
	!	ZE1	Varistor	TNR10V471K-T8	1
	!	CN1	Connector	5271-03A	1
	!	CN2	Connector	5289-2A	1
	!	CN4	Connector	1-1123724-3	1
		CN6	Connector	B3B-XH-TV4	1
	!	CN7	Connector	1-1123724-2	1
		CN8	Connector	B7B-PH-K- S	1
		CN9	Connector	0-177538-3	1
		CN11	Connector	S4B-XH- A	1
		CN12	Connector	S5B-PH-K- S	1
	!	CF1	Current Fuse	2183.15M	1
		FC1,2	Fuse Crip	TP00351-51	2
		SW1	Tact Switch	SKHHL Q179 A	1
	!	RL1	Relay	G4A-1A-E D C12V	1
	!	RL2	Relay	G5NB-1A4- SP D C12V	1
	!	C1	Film Capacitor	DS441125TL-B	1
	!	C2	Film Capacitor	ECQU2A224M GA	1
	!	C3,4	Film Capacitor	630MMW103KEFTL-B	2
		C5	Electrolytic Capacitor	25MV1000H C+T0	1
		C6	Electrolytic Capacitor	TC04R SM10VB100M F	1
		C12,14,15,24,31	Ceramic Capacitor	MCH185 C102KK	5
		C11,18,21,22,23	Ceramic Capacitor	MCH185 CN103KK	5
		C13 ,16 ,17 ,19 ,20 ,25 , 26,27,28,29,30	Ceramic Capacitor	GRM188F11E104ZA0 1	11
		D1,2,3	Diode	DSK10E-BT	3
	!	R 1	Carbon Film Resistor (Flame retardant	CFPS1/2CT26A101J	1
	!	R2,3	Carbon Film Resistor (Flame retardant	CFPS1/2CT26A103J	2
		R4	Carbon Film Resistor	RD25 ST26J332	1
		R5	Carbon Film Resistor	RD25 ST26J471	5
		R6,8	Carbon Film Resistor	RD25 ST26J271	2
		R7	Carbon Film Resistor	RD25 ST26J331	1
		R9,10,11,12,13,15,1	Carbon Film Resistor	SR25TR102J	7
		R14	Carbon Film Resistor	SR25TR103J	1

S 1731 Indoor, S 1735 Indoor

PCB ASSEMBLY(MAIN)

AC-382,383					
ALTERNATIVE		REF. No.	PART NAME	PART NUMBER	Q'TY
		R21,30,40,51,52	Flat Chip Resistor	RPC05T102J	5
		R22	Flat Chip Resistor	RPC05T105J	1
		R23	Flat Chip Resistor	MCR18EZHJ47 2	1
		R24,28,29,34,36,37, 38,41,54	Flat Chip Resistor	RPC05T103J	9
		R25	Flat Chip Resistor	MCR18EZHJ 222	1
		R26,42,49	Flat Chip Resistor	RPC05T332J	3
		R27	Flat Chip Resistor	RPC05T682J	1
		R31	Flat Chip Resistor	MCR18EZHJ 153	1
		R32	Flat Chip Resistor	RPC05T47 1J	1
		R33	Flat Chip Resistor	RPC05T223J	1
		R35	Flat Chip Resistor	MCR18EZHJ 101	1
		R39,46	Flat Chip Resistor	RPC05T47 2J	2
		R43,44	Flat Chip Resistor	MCR18EZHJ 331	2
		R45,47,4 8	Flat Chip Resistor	RPC05T104J	3
		R50	Flat Chip Resistor	MCR18EZHF 3301	1
		R53	Flat Chip Resistor	MCR03EZHF 2002	1
		J31,32,33,34,35,36,	Flat Chi p Resistor	MCR18EZZHJ000	8
		J1,2,3,4,5,6,7,8,9, 10,11,12,13,14,15, 16,17,18,19,20,21, 22,23,24,25	Jumpere Wire		25

S1731 Indoor, S1735 Indoor

PCB ASSEMBLY(RECEIVER&DISPLAY)

AC-359					
ALTERNATIVE		REF. No.	PART NAME	PART NUMBER	Q'TY
		PB1	PCB	CE-38100	1
		LD1	LED	SPR-39MVWF	1
		LD2	LED	SLR-342YY3F(L,M,N)	1
		LD3	LED	SLR-342MG3F(N,P)	1
		PD1	Remote Receiver Unit	SBX1810-52P	1
		LS1	Lead Wire	40002140	1
ZP1			LED Holder	40002330	1

S 1731 Outdoor, S 1735 Outdoor

PCB ASSEMBLY(MAIN)

AC-377, AC-379

ALTERNATIVE		Ref. No.	PARTS NAME	PARTS No.	Q'TY
			PCB	CE-38700 for AC-377	1
			PCB	CE-38710 for AC-379	1
		C1	Film Cap.	ECQE2A103D69	1
		C10,11	Electrolytic Cap.	25ME47AX+T	2
		C105,106,107,108	Ceramic Cap.	GRM188B11H331KA01D	4
		C12,16	Electrolytic Cap.	TC04RKY35VB220MH15F50E0	2
		C13	Electrolytic Cap.	ESMG500ETC470MF11D	1
		C14	Electrolytic Cap.	25ME100HC+T	1
		C15,25	Electrolytic Cap.	ELXZ350ETD471MJ20S	2
		C17	Electrolytic Cap.	ESMG100ETC101ME11D	1
		C18	Electrolytic Cap.	10YK220MTA	1
		C19,20,21	Electrolytic Cap.	TC04RKY25VB100MF11F50E0	3
		C2	Electrolytic Cap.	UVR2E220MHD1TO	1
		C22,23,24	Ceramic Cap.	UP050F104Z-A-BZ	3
		C3	Film Cap.	UP45B125U2692A	1
OR		C3	Film Cap.	DS441125TL-B	1
		C31,32,66,67,68,70,71,73,77,82, 83,84,85,86,87,89,97,98,99	Ceramic Cap.	GRM188B11H102KA01D	19
		C33,35,36,38,39,40,41,42,54,55, 57,60,65,72,76,88,92,93,94,95, 100,102	Ceramic Cap.	GRM188F11E104ZA01D	22
OR		C33,35,36,38,39,40,41,42,54,55, 57,60,65,72,76,88,92,93,94,95, 100,102	Ceramic Cap.	MCH182CN104KK	22
		C34,37,91	Ceramic Cap.	GRM188F11H473ZA01D	3
		C4,5	Electrolytic Cap.	LLQ2G561KEUAZ0	2
		C47,48,49,58,59,61,62,63,64,69, 75,96,101	Ceramic Cap.	MCH185CN103KK	13
		C6,7	Film Cap.	ECQ-E6104KFA	2
		C8	Film Cap.	630MMW103KEFTL-B	1
		C9	Ceramic Cap.	DE2E3KH102MN3A	1
		C90	Ceramic Cap.	GRM188B11H472KA01D	1
		CF1	Current Fuse	250VLCR15AF916	1
		CF2	Current Fuse	250VSCR3AF307	1
		CN10	Connector	B04P-VL-VN-1.8	1
		CN17	Connector	B02P-XL-HDB(LF)(SN)	1
		CN18	Connector	1376383-1	1
		CN19	Connector	1376382-1	1
		CN20	Connector	BH3B-XH-2(LF)(SN)	1
		CN21	Connector	BH2B-XH-2(LF)(SN)	1
		CN22	Connector	BH3B-XH-2-Y(LF)(SN)	1
		CN25	Connector	B6B-XH-A-Y(LF)(SN)	1
		CT1	Current Transformer	CTN-EE1908CF	1
		CX1	Ceramic Resonator	CSTLF14M7X53-A0	1
		D1,2,3,4	Diode	1JU41(TPA3,Q)	4
		D31,32,33,34	Diode	S1J-E3/11T	4
		D35,36,37,38	Diode	D1FL20U-5063	4
		D39,40,41,44	Diode	1SS355TE-17	4
		D42	Diode	DAP202KT146	1
		D43	Diode	DAN202KT146	1

S 1731 Outdoor, S 1735 Outdoor

PCB ASSEMBLY(MAIN)

AC-377, AC-379					
		D45,46	Diode	RB751V-40TE-17	2
		DB1	Bridge Diode	D15XB60-7009F13	1
		DB2	Bridge Diode	D15XB60-7001	1
		DQ33,34,35	Transistor(BRT Type)	DTC143XUAT106	3
		DQ36,38	Transistor(BRT Type)	DTA114EUAT106	2
		HS1	Heat Sink	OSH-1625-WFL	1
		IC1	Switching Power IC	MIP0222SY	1
		IC10	Logic IC	TC7W00F(TE12L,F)	1
		IC11	Comparator IC	uPC339G2-E1-A	1
		IC12	Shunt Regulator	uPC1093T-E1-AZ	1
OR		IC12	Shunt Regulator	TA76431F(TE12L,F)	1
		IC2	Power Module	FSBS15CH60	1
		IC3	Micro Processor	TMP88CS43FG-6FC7	1
		IC4	Low Voltage Detector	XC61CN4202NR	1
		IC5	EEPROM	S-93C76ADFJ-TB-G	1
		IC6	Transistor Array	M63823GP-DB0J	1
		IC9	Logic IC	HD74HC367FP-EL-E	1
OR		IC9	Logic IC	TC74VHC367F(EL,F)	1
		J31	Jumpere Wire	MCR18EZHJ000	1
		J32,33	Jumpere Wire	RPC05T0R0	2
		L1,2	Inductor	LHLC06TB100K	2
		L3	Inductor	LAL03TA220K	1
		LS12	Lead Wire	40009110	1
		LS13	Lead Wire	40009120	1
		LS14	Lead Wire	40009130	1
		LS15	Lead Wire	40009140	1
		LS16	Lead Wire	40010640	1
		PC1	Optocouplers	TLP371(F)	1
		PC2	Optocouplers	TLP251(F)	1
		PC31	Optocouplers	PS2705-1-V-F3-A	1
		PC32,33	Optocouplers	PS2701-1-V-F3-A(L)	2
		Q1	IGBT	GT30J121(Q)	1
		R1,2,3	Flame Retardant Carbon Film Res.	CFPS1/2CT26A100J	3
		R11	Chip Res.	RVC63474JTE	1
			Chip Res.	RPC05T472J	14
		R12,14	Chip Res.	RPC1ST393J	2
		R13,21	Chip Res.	RPC05T105J	2
		R130,131,132	Chip Res.	RPC18T330J	3
		R139	Chip Res.	RPC18T102J	1
		R141	Chip Res.	RPC05T822F	1
		R15,16,17,18	Chip Res.	RPC1ST223J	4
			Chip Res.	RK73H2BTTD1803D	14
		R19,20	Chip Res.	MCR50JZHJ104	2
			Chip Res.	RPC05T102J	40
		R23	Chip Res.	RPC1ST222J	1
		R24,25,26,27	Chip Res.	MCR50JZHJ184	4
		R28,48	Chip Res.	RK73B2ATTD471J	2

S 1731 Outdoor, S 1735 Outdoor

PCB ASSEMBLY(MAIN)

AC-377, AC-379					
		R29,33,36,39	Chip Res.	MCR10EZHJ103	4
		R30,40,41,46,47,73,99,169	Chip Res.	RPC05T223J	8
		R31,32	Chip Res.	RPC1ST473J	2
		R34	Chip Res.	RK73B2ATTD100J	1
		R35	Chip Res.	RK73B2ATTD680J	1
		R37	Chip Res.	MCR50JZHJ471	1
		R4	Cement Res.	BPR58CF20LJ	1
		R42,89,90,95,96,100,102	Chip Res.	RPC05T103J	7
		R43	Chip Res.	RPC05T184J	1
		R44,74,75,147,149,151,152	Chip Res.	RPC05T103F	7
		R45	Chip Res.	RPC05T222F	1
		R49	Chip Res.	MCR10EZHF5600	1
		R5,6	Flame Retardant Carbon Film Res.	CFPS1/2CT26A5R6J	2
		R50	Chip Res.	RPC05T152J	1
		R51,52,79	Chip Res.	RPC05T562J	3
		R57	Chip Res.	RPC18T152J	1
		R60,61,63,65,81,83,85,87	Chip Res.	MCR03EZPFX5601	8
		R67,129	Chip Res.	RPC05T473F	2
		R68,70	Chip Res.	MCR03EZPFX2002	2
		R91,92,93,134,135	Chip Res.	RPC05T101J	5
		R98	Chip Res.	RPC05T471J	1
		RG1	Voltage Regulator	NJM78M15FA	1
OR		RG1	Voltage Regulator	TA78M15S(Q)	1
OR		RG1	Voltage Regulator	uPC78M15AHF-AZ	1
		RG2	Voltage Regulator	TA78L005AP(TPE6,F)	1
		RL1,2,3	Relay	G5NB-1A4-SP DC12V	3
OR		RL1,2,3	Relay	ALD112-J	3
OR		RL1,2,3	Relay	FTR-F3AA012E-KS	3
		RL4	Relay	G4A-1A-E DC12V	1
		T1	Switching Transformer	TAEM30M	1
		TH1	PTC	ZPM0RCH330A250	1
		TH31	Thermistor	NCP18WF104J03RB	1
		VR1	Cermet Trimmer	FT-63ETV100Ω(101)	1
		ZD31,32	Zener Diode	U1ZB30(TE12R,Q)	2
		ZE1	Varistor	TND10V-621KTFBAAA0	1
		ZE2	Varistor	TND10SE471KTFBAAA0	1
			Housing	XHP-6	1
			TAB Cap	STC-250	1
			Screw	M3x12	1
			Adhesive	SC901	2
			Silicone	YG6111	1
			Coating Material	TF-1141T	10
			Coating Material	LSS-520	10

S 1731 Outdoor, S 1735 Outdoor

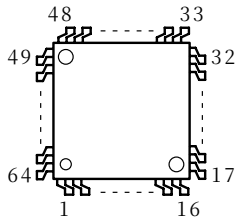
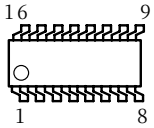
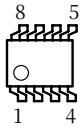
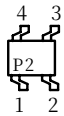
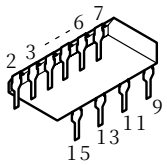
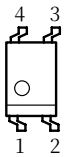
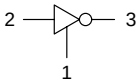
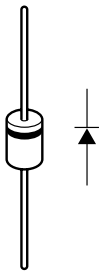
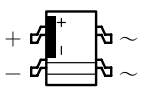
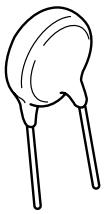
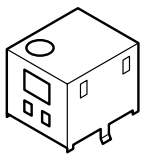
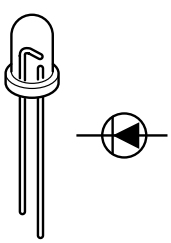
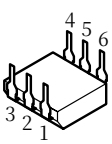
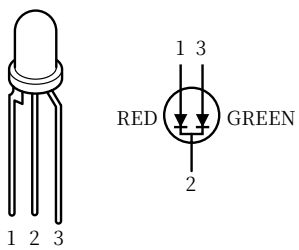
PCB ASSEMBLY(FILTER)

AC-378					
ALTERNATIVE		Ref. No.	PARTS NAME	PARTS No.	Q'TY
			PCB	CE-38800	1
		C1,3	Film Cap.	ECQU2A105MLA	2
		C4,5,6,7,11	Ceramic Cap.	DE2E3KH472MN3A	5
		CF1	Current Fuse	CES15-12A F021	1
		D1,6	Diode	S1J-E3/11T	2
		J11	Jumpere Wire	MCR18EZHJ000	1
		L1	Line Filter	ADR25K-15010T	1
		L2	Line Filter	ADR-25-10-030T-01	1
		LS1	Lead Wire	40009060	1
		LS2	Lead Wire	40009070	1
		LS3	Lead Wire	40009080	1
		LS4	Lead Wire	40009090	1
		LS5	Lead Wire	40009100	1
		R1	Flame Retardant Carbon Film Res.	CFPS1/2CT26A222J	1
		R11,12,13,14	Chip Res.	MCR50JZHJ224	4
		R17	Chip Res.	RPC1ST222J	1
		SA1	Surge Absorber	EM2500X6SB2	1
		ZE1,2,3	Varistor	TND10SE471KTFBAAA0	3
			Cable Tie	T30R-HR(L152)	1
			Coating Material	TF-1141T	5
			Coating Material	LSS-520	5

SEMICONDUCTOR LEAD IDENTIFICATION

S 1731 Indoor
S 1735 Indoor

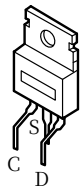
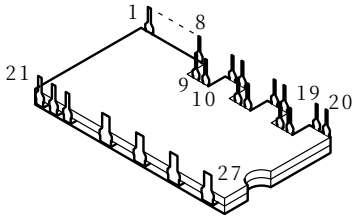
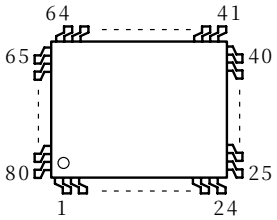
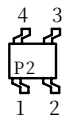
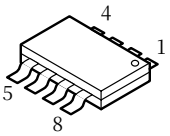
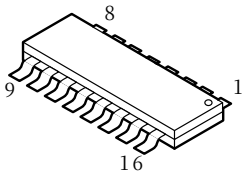
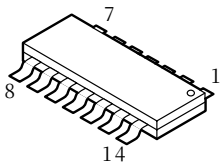
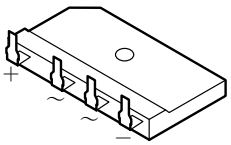
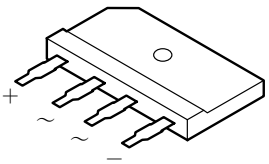
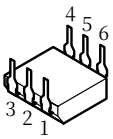
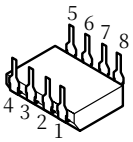
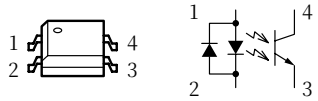
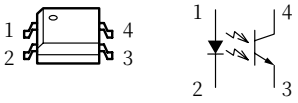
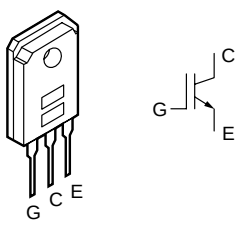
AC-359, AC-382, AC-383

IC1	IC3	IC2
M38037M8H-201KP 	M63823GP 	S-93LC56ADFJ 
IC4	**RG1**	**PC2**
XC61CN4202NR  1 OUT 2 IN 3 NC 4 VSS	TA78L05 NJM78L05 	S201DH1Y 
PC3	**DQ11～16**	**D1～3**
PC357N9 	DTA114EKA DTC143XKA  1 GNC 2 IN 3 OUT	DSK10E S5688G 
DB1	**ZE1**	**PD1**
S1ZB60 	TNR10V471K 	SBX1810-52P 
LD2,3	**PC1**	**LD1**
SLR342MG3F SLR342YY3F 	TLP371 	SPR-39MVWF 

SEMICONDUCTOR LEAD IDENTIFICATION

S 1731 Outdoor
S 1735 Outdoor

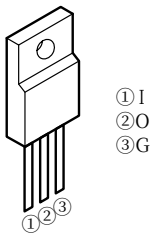
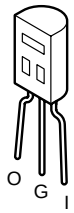
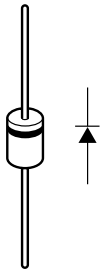
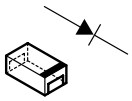
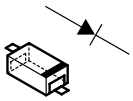
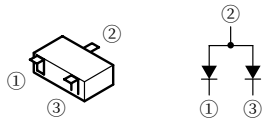
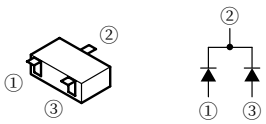
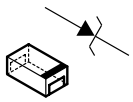
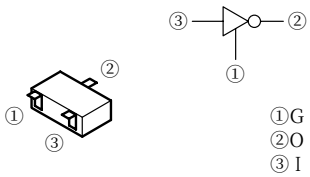
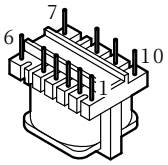
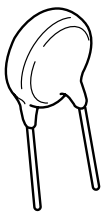
AC-377, AC-378, AC-379

IC1:AC-377,379	IC2:AC-377,379	IC3:AC-377,379
MIP0222SY 	FSBS15CH60 	TMP88CS43 
IC4:AC-377,379	**IC5,10:AC-377,379**	**IC6,9:AC-377,379**
XC61CN4202NR  1 OUT 2 IN 3 NC 4 VSS	S-93C76ADFJ TC7W00F 	M63823 HD74HC367 
IC11:AC-377,379	**IC12:AC-377,379**	**DB1:AC-377,379**
uPC339 	uPC1093T-E1	D15XB60-F13 
DB2:AC-377,379	**PC1:AC-377,379**	**PC2:AC-377,379**
D15XB60 	TLP371 	TLP251 
PC31:AC-377,379	**PC32,33:AC-377,379**	**Q1:AC-377,379**
PS2705 	PS2701 	G30J121 

SEMICONDUCTOR LEAD IDENTIFICATION

S 1731 Outdoor
S 1735 Outdoor

AC-377, AC-378, AC-379

RG1:AC-377,379	RG2:AC-377,379	D1～4:AC-377,379
NJM7815 uPC78M15 TA78M15 	TA78L005AP 	1JU41 
D31～38 :AC-377,379 D1,6 :AC-378	D39～41,44～46:AC-377,379	D42:AC-377,379
D1FL20U S1J 	1SS355 RB751V 	DAP202K 
D43:AC-377,379	ZD31,32:AC-377,379	DQ33～36,38:AC-377,379
DAN202K 	U1ZB30 	DTC143X DTA114E 
T1:AC-377,379	ZE1,2 :AC-377,379 ZE1～3:AC-378	
TAEM30M 	TND10SE471K TND10V621K 	

S 1731 Indoor, S 1735 Indoor

SEMICONDUCTOR

IC1

Pin No.	Signal Name	Function	In/Out	Active	Voltage
1	A/D Input	Sensor(Room Temp.)	In	-	See 53 Page
2	A/D Input	Sensor(Heat Exchanger Temp.)	In	-	See 55 Page
3	NC	NC	In	-	0V
4	Munual Sw. Input	Munual Sw. Input	In	L	5Vor0V
5	Motor(fan)	H=Motor(fan) On	Out	H	See Fig 1
6	Buzzer	4KHz Pulse=On	Out	H	5V 4KHz Pulse(Duty50%)
7	Pulse Input (Fan Motor Pulse)	Pulse Input (Fan Motor Pulse)	In	-	See Fig 3
8	NC	NC	In	-	-
9	NC	NC	In	-	-
10	NC	NC	Out	-	-
11	NC	NC	In	-	-
12	NC	NC	In	-	0V
13	NC	NC	In	-	0V
14	NC	NC	In	-	5V
15	NC	NC	In	-	0V
16	MIN.Hz UP	H=MIN.Hz UP L=Normal	In	H	0V
17	Remote Controller Input	Remote Controller Signal	In	H	5Vor0V
18	NC	NC	In	-	0V
19	Reset	L=Reset	In	L	5Vor0V
20	NC	NC	In	-	5V
21	Zero Cross	Zero Cross	In	-	See Fig. 2
22	Resonator In	Clock In	In	-	10MHz
23	Resonator Out	Clock Out	Out	-	10MHz
24	VSS	0V(GND)	-	-	0V
25	NC	NC	In	-	5V
26	NC	NC	In	-	5V
27	Ionizer Lamp	L=Ionizer Lamp On	Out	L	5Vor0V
28	Power Lamp	L=Power Lamp On	Out	L	5Vor0V
29	Timer Mode Lamp	L=Timer Mode Lamp On	Out	L	5Vor0V
30	Operating Mode Lamp	L=Operating Mode Lamp On	Out	L	5Vor0V
31	NC	NC	In	-	5V
32	Power Relay	L=Power Relay On	Out	H	5Vor0V
33	Motor(Louver D)	Pulse=On L=Off	Out	H	5Vor0V
34	Motor(Louver C)	Pulse=On L=Off	Out	H	5Vor0V
35	Motor(Louver B)	Pulse=On L=Off	Out	H	5Vor0V
36	Motor(Louver A)	Pulse=On L=Off	Out	H	5Vor0V
37	NC	NC	Out	-	-
38	NC	NC	Out	-	-
39	NC	NC	Out	-	-
40	NC	NC	Out	-	-
41	NC	NC	Out	-	-
42	NC	NC	Out	-	-
43	NC	NC	Out	-	-
44	Ionizer	H=Ionizer On	Out	H	5Vor0V
45	A/D Inpuut	Change the Function	In	-	3.4V
46	EXTERNAL CONTROL	H=On L=Off(Normal)	In	-	0.2V
47	AUTO RECOVERY OFF	H=Off L=On(Normal)	In	H	0V
48	NC	NC	In	-	5V
49	NC	NC	In	-	0V
50	EEPROM(SO)	EEPROM Serial Data Output	Out	-	5Vor0V
51	Communication Output	Pulse=Communication Output	Out	H	5Vor0V
52	Communication Input	Communication Input	In	-	5Vor0V
53	NC	NC	In	-	-
54	EEPROM(SI)	EEPROM Serial Data Input	In	-	5Vor0V
55	EEPROM(SK)	EEPROM Serial Data Clock	Out	-	5Vor0V
56	EEPROM(CS)	EEPROM Chip Select	Out	-	5Vor0V
57	VCC	5V POWER	-	-	5V
58	Vref	A/D Reference Voltage	-	-	5V
59	AVSS	0V(GND)	-	-	0V
60	NC	NC	-	-	0V
61	REMOTE CONTROLLER A/B	H=Btype L=Atype(Normal)	In	-	0.2V
62	LOUVER CONTROL	H=Off L=On(Normal)	In	-	0.2V
63	NC	NC	-	-	5V
64	NC	NC	-	-	5V

IC3

1～ 7	Input	5V(or Pulse)=On 0V=Off	In	L	5Vor0V
8	GND	0V(GND)	-	-	0V
9～ 15	Output	0V(or Pulse)=On 12V=Off	Out	H	12Vor0V
16	VCC	12V	-	-	12V

Fig.1

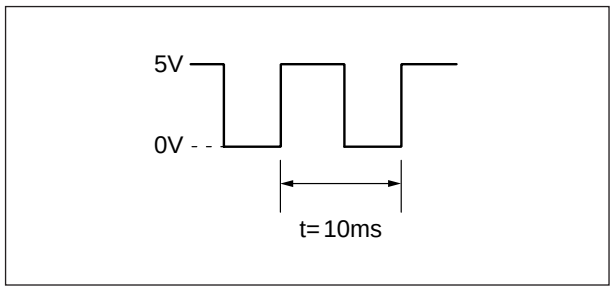


Fig.2

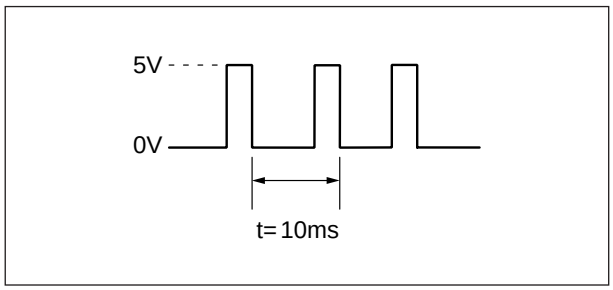
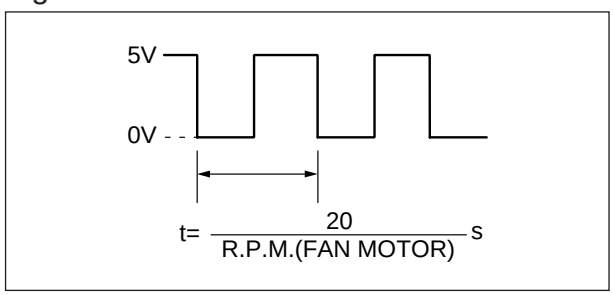


Fig.3



S 1731 Outdoor, S 1735 Outdoor

SEMICONDUCTOR

IC2 PIN FUNCTION

Pin No.	Signal Name	Function	In/Out	Active	Voltage
1	VCCL	15V Power Supply	POWER	-	15V
2	COML	Common Supply GND	GND	-	0V
3	INUL	INVERTER U- Input	In	H	4Vor0V
4	INVL	INVERTER V- Input	In	H	4Vor0V
5	INWL	INVERTER W- Input	In	H	4Vor0V
6	VFO	Alarm Output	Out	L	5V
7	CFOD	Set Alarm Palse Width	Out	H	0V
8	CSC	DC Current Detection Input	In	H	0 - 0.5V
9	INUH	INVERTER U+ Input	In	-	4Vor0V
10	VCCUH	U+ IC Power Supply	POWER	-	15V
11	VBU	U+ IGBT Driving Power Supply	POWER	-	VBU-VSU=15V
12	VSU	U+ IGBT Driving GND	GND	-	VBU-VSU=15V
13	INVH	INVERTER V+ Input	In	-	4Vor0V
14	VCCVH	V+ IC Power Supply	POWER	-	15V
15	VBV	V+ IGBT Driving Power Supply	POWER	-	VBV-VSV=15V
16	VSV	V+ IGBT Driving GND	GND	-	VBV-VSV=15V
17	INWH	INVERTER W+ Input	In	-	4Vor0V
18	VCCWH	W+ IC Power Supply	POWER	-	15V
19	VBW	W+ IGBT Driving Power Supply	POWER	-	VBW-VSW=15V
20	VSW	W+ IGBT Driving GND	GND	-	VBW-VSW=15V
21	NU	Nega. DC-Link U	GND	-	0V
22	NV	Nega. DC-Link V	GND	-	0V
23	NW	Nega. DC-Link W	GND	-	0V
24	U	Output U	Out	-	0-360V
25	V	Output V	Out	-	0-360V
26	W	Output W	Out	-	0-360V
27	P	Posi. DC-Link Input	POWER	-	150-360V

IC3 PIN FUNCTION

Pin No.	Signal Name	Function	In/Out	Active	Voltage
1	VSS	GND	GND	-	0V
2	Xin	Resonator In	In	-	14.7MHz
3	Xout	Resonator Out	Out	-	14.7MHz
4N	C	NC	I n	-	0V
5	VDD	IC3 Power Supply	POWER	-	5V
6N	C	NC	I n	-	0V
7N	C	NC	I n	-	5V
8	RESET(IC4)	IC3 RESET Input Up to 4.2V= H Less than 4.2V= L	In	L	H:5V L:0V
9N	C	NC	I n	-	-
10	IC9 14Pin	INVERTER -W Output	Out	H	5Vor0V
11	IC9 12Pin	INVERTER -V Output	Out	H	5Vor0V
12	IC9 10Pin	INVERTER -U Output	Out	H	5Vor0V
13	IC9 6Pin	INVERTER +W Output	Out	H	5Vor0V
14	IC9 4Pin	INVERTER +V Output	Out	H	5Vor0V
15	IC9 2Pin	INVERTER +U Output	Out	H	5Vor0V
16	DQ38	DC Over Current	In	L	5V
17	NC	NC	In	-	5V
18	IC11 14Pin	COMP. Position W	I n	L	5Vor0V
19	IC11 1Pin	COMP. Position V	I n	L	5Vor0V
20	IC11 13Pin	COMP. Position U	I n	L	5Vor0V
21	TEST CK	TEST CK	Out	H	5Vor0V
22	TEST SI	TEST SI	In	H	5Vor0V
23	TEST SO	TEST SO	Out	H	5Vor0V
24	NC	NC	In	-	5V
25	IC10 5Pin	DC Current Alarm Reset	Out	L	5Vor0V
26	A/D Input	DC Power Monitor	In	-	0 - 5V
27	A/D Input	TEMP.,Module Sensor	In	-	0 - 5V
28	A/D Input	NC	In	-	0V
29	A/D Input	NC	In	-	0V
30	A/D Input	NC	In	-	0V
31	A/D Input	NC	In	-	0V
32	A/D Input	TEMP.,Outdoor Sensor	In	-	0 - 5V
33	TEST Output	TEST Output	Out	-	5Vor0V
34	A/D Input	TEMP.,Defrost Sensor	In	-	0 - 5V
35	A/D Input	TEMP.,Discharge Sensor	In	-	0 - 5V
36	A/D Input	NC	In	-	0V
37	A/D Input	NC	In	-	0V
38	A/D Input	NC	In	-	0V
39	A/D Input	NC	In	-	0V
40	A/D Input	NC	In	-	2.5V
41	A/D Input	AC Current Sensor	In	-	0 - 5V
42	VAREF	A/D Refference Voltage	POWER	-	5V
43	AVDD	A/D Power Supply	POWER	-	5V
44	VASS	A/D GND	GND	-	0V
45	DQ34	Heater Output	Out	H	5Vor0V
46	NC	NC	Out	-	-
47	NC	NC	Out	-	-
48	IC6 7Pin	4way Valve Output	Out	H	5Vor0V
49	IC6 6Pin	Fan Motor Output	Out	H	5Vor0V
50	IC6 5Pin	Power Relay Output	Out	H	5Vor0V
51	NC	NC	Out	-	-
52	NC	NC	Out	-	-
53	NC	NC	Out	-	-
54	NC	NC	Out	-	-
55	NC	NC	Out	-	-
56	NC	NC	Out	-	-
57	NC	NC	Out	-	-
58	NC	NC	Out	-	-
59	NC	NC	Out	-	-
60	NC	NC	Out	-	-
61	PC32	Communication Input	In	H	5Vor0V
62	DQ33	Communication Output	Out	H	5Vor0V
63	NC	NC	Out	-	-
64	NC	NC	Out	-	-
65	NC	NC	Out	-	-
66	PC31	Zero Cross	In	L	5Vor0V
67	PC31	Zero Cross	In	L	5Vor0V
68	NC	NC	Out	-	-
69	DQ35	PFC IGBT Output	Out	H	5Vor0V
70	NC	NC	Out	-	-
71	NC	NC	Out	-	-
72	DQ36	PFC On	Out	L	5Vor0V
73	NC	NC	Out	-	-
74	NC	NC	Out	-	-
75	NC	NC	Out	-	-
76	NC	NC	Out	-	-
77	IC5 1Pin	EEPROM Chip Serect	Out	H	5Vor0V
78	IC5 2Pin	EEPROM Clock	Out	-	-
79	IC5 3Pin	EEPROM Data Output	Out	-	-
80	IC5 4Pin	EEPROM Data Input	In	-	-

SENSOR, ROOM TEMPERATURE

Indoor Unit SENSOR, ROOM TEMPERATURE
B CONSTANT · 4150±3%
STANDARD TEMPERATURE · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · 23kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
-30.0	537.8	0.18	-10.0	146.8	0.60
-29.5	519.3	0.19	-9.5	142.4	0.62
-29.0	501.5	0.19	-9.0	138.2	0.63
-28.5	484.3	0.20	-8.5	134.2	0.65
-28.0	467.8	0.20	-8.0	130.3	0.67
-27.5	452.0	0.21	-7.5	126.5	0.68
-27.0	436.7	0.22	-7.0	122.8	0.70
-26.5	422.0	0.23	-6.5	119.3	0.72
-26.0	407.9	0.23	-6.0	115.9	0.74
-25.5	394.3	0.24	-5.5	112.5	0.75
-25.0	381.1	0.25	-5.0	109.3	0.77
-24.5	368.5	0.26	-4.5	106.2	0.79
-24.0	356.4	0.27	-4.0	103.2	0.81
-23.5	344.7	0.27	-3.5	100.3	0.83
-23.0	333.4	0.28	-3.0	97.5	0.85
-22.5	322.5	0.29	-2.5	94.8	0.87
-22.0	312.1	0.30	-2.0	92.1	0.89
-21.5	302.0	0.31	-1.5	89.5	0.91
-21.0	292.2	0.32	-1.0	87.1	0.93
-20.5	282.9	0.33	-0.5	84.7	0.96
-20.0	273.8	0.34	0.0	82.3	0.98
-19.5	265.1	0.35	0.5	80.1	1.00
-19.0	256.7	0.36	1.0	77.9	1.02
-18.5	248.6	0.37	1.5	75.8	1.04
-18.0	240.8	0.38	2.0	73.7	1.07
-17.5	233.2	0.39	2.5	71.7	1.09
-17.0	225.9	0.41	3.0	69.8	1.11
-16.5	218.9	0.42	3.5	67.9	1.14
-16.0	212.1	0.43	4.0	66.1	1.16
-15.5	205.6	0.44	4.5	64.3	1.19
-15.0	199.3	0.46	5.0	62.6	1.21
-14.5	193.2	0.47	5.5	61.0	1.23
-14.0	187.3	0.48	6.0	59.4	1.26
-13.5	181.6	0.50	6.5	57.8	1.29
-13.0	176.1	0.51	7.0	56.3	1.31
-12.5	170.8	0.52	7.5	54.8	1.34
-12.0	165.6	0.54	8.0	53.4	1.36
-11.5	160.7	0.55	8.5	52.0	1.39
-11.0	155.9	0.57	9.0	50.7	1.41
-10.5	151.2	0.58	9.5	49.4	1.44
-10.0	146.8	0.60	10.0	48.1	1.47

THERMISTOR RESISTANCE CHART

Indoor Unit SENSOR, ROOM TEMPERATURE
B CONSTANT · 4150±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · 23kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
10.0	48.1	1.47	30.0	18.3	2.61
10.5	46.9	1.50	30.5	17.9	2.64
11.0	45.7	1.52	31.0	17.5	2.67
11.5	44.5	1.55	31.5	17.1	2.70
12.0	43.4	1.58	32.0	16.7	2.72
12.5	42.3	1.60	32.5	16.3	2.75
13.0	41.3	1.63	33.0	16.0	2.78
13.5	40.2	1.66	33.5	15.6	2.81
14.0	39.2	1.69	34.0	15.3	2.83
14.5	38.2	1.72	34.5	15.0	2.86
15.0	37.3	1.75	35.0	14.6	2.89
15.5	36.4	1.77	35.5	14.3	2.91
16.0	35.5	1.80	36.0	14.0	2.94
16.5	34.6	1.83	36.5	13.7	2.97
17.0	33.8	1.86	37.0	13.4	2.99
17.5	33.0	1.89	37.5	13.1	3.02
18.0	32.2	1.92	38.0	12.9	3.04
18.5	31.4	1.95	38.5	12.6	3.07
19.0	30.6	1.98	39.0	12.3	3.09
19.5	29.9	2.00	39.5	12.1	3.12
20.0	29.2	2.03	40.0	11.8	3.14
20.5	28.5	2.06	40.5	11.6	3.17
21.0	27.8	2.09	41.0	11.3	3.19
21.5	27.1	2.12	41.5	11.1	3.22
22.0	26.5	2.15	42.0	10.8	3.24
22.5	25.9	2.18	42.5	10.6	3.27
23.0	25.3	2.21	43.0	10.4	3.29
23.5	24.7	2.24	43.5	10.2	3.31
24.0	24.1	2.27	44.0	10.0	3.34
24.5	23.5	2.30	44.5	9.8	3.36
25.0	23.0	2.33	45.0	9.6	3.38
25.5	22.5	2.35	45.5	9.4	3.40
26.0	22.0	2.38	46.0	9.2	3.43
26.5	21.5	2.41	46.5	9.0	3.45
27.0	21.0	2.44	47.0	8.8	3.47
27.5	20.5	2.47	47.5	8.7	3.49
28.0	20.0	2.50	48.0	8.5	3.51
28.5	19.6	2.53	48.5	8.3	3.53
29.0	19.1	2.56	49.0	8.1	3.55
29.5	18.7	2.58	49.5	8.0	3.57
30.0	18.3	2.61	50.0	7.8	3.59

SENSOR, HEAT EXCHANGER TEMPERATURE

Indoor Unit SENSOR, HEAT EXCHANGER TEMPERATURE
B CONSTANT · 3700±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · 10kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
-40.0	319.4	0.05	0.0	31.2	0.48
-39.0	298.4	0.05	1.0	29.7	0.50
-38.0	279.0	0.06	2.0	28.2	0.52
-37.0	261.0	0.06	3.0	26.9	0.55
-36.0	244.3	0.07	4.0	25.6	0.57
-35.0	228.8	0.07	5.0	24.4	0.60
-34.0	214.4	0.08	6.0	23.3	0.62
-33.0	201.0	0.08	7.0	22.2	0.65
-32.0	188.5	0.09	8.0	21.2	0.67
-31.0	176.9	0.09	9.0	20.2	0.70
-30.0	166.1	0.10	10.0	19.3	0.73
-29.0	156.1	0.10	11.0	18.4	0.76
-28.0	146.7	0.11	12.0	17.6	0.79
-27.0	138.0	0.12	13.0	16.8	0.82
-26.0	129.8	0.12	14.0	16.1	0.85
-25.0	122.2	0.13	15.0	15.4	0.88
-24.0	115.1	0.14	16.0	14.7	0.92
-23.0	108.5	0.15	17.0	14.1	0.95
-22.0	102.3	0.16	18.0	13.5	0.98
-21.0	96.4	0.17	19.0	12.9	1.02
-20.0	91.0	0.17	20.0	12.4	1.05
-19.0	85.9	0.18	21.0	11.8	1.09
-18.0	81.1	0.20	22.0	11.3	1.13
-17.0	76.7	0.21	23.0	10.9	1.16
-16.0	72.5	0.22	24.0	10.4	1.20
-15.0	68.5	0.23	25.0	10.0	1.24
-14.0	64.9	0.24	26.0	9.6	1.28
-13.0	61.4	0.26	27.0	9.2	1.32
-12.0	58.1	0.27	28.0	8.8	1.36
-11.0	55.1	0.28	29.0	8.5	1.40
-10.0	52.2	0.30	30.0	8.1	1.44
-9.0	49.5	0.31	31.0	7.8	1.48
-8.0	46.9	0.33	32.0	7.5	1.52
-7.0	44.5	0.34	33.0	7.2	1.57
-6.0	42.3	0.36	34.0	6.9	1.61
-5.0	40.1	0.38	35.0	6.7	1.65
-4.0	38.1	0.40	36.0	6.4	1.70
-3.0	36.2	0.42	37.0	6.2	1.74
-2.0	34.5	0.44	38.0	6.0	1.78
-1.0	32.8	0.46	39.0	5.7	1.83
0.0	31.2	0.48	40.0	5.5	1.87

THERMISTOR RESISTANCE CHART

Indoor Unit SENSOR, HEAT EXCHANGER TEMPERATURE
B CONSTANT · 3700±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · 10kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
40.0	5.5	1.87	80.0	1.4	3.48
41.0	5.3	1.92	81.0	1.4	3.51
42.0	5.1	1.96	82.0	1.4	3.54
43.0	4.9	2.00	83.0	1.3	3.57
44.0	4.8	2.05	84.0	1.3	3.60
45.0	4.6	2.09	85.0	1.2	3.63
46.0	4.4	2.14	86.0	1.2	3.66
47.0	4.3	2.18	87.0	1.2	3.68
48.0	4.1	2.23	88.0	1.1	3.71
49.0	4.0	2.27	89.0	1.1	3.74
50.0	3.8	2.32	90.0	1.1	3.76
51.0	3.7	2.36	91.0	1.1	3.79
52.0	3.6	2.40	92.0	1.0	3.82
53.0	3.4	2.45	93.0	1.0	3.84
54.0	3.3	2.49	94.0	1.0	3.87
55.0	3.2	2.53	95.0	0.9	3.89
56.0	3.1	2.58	96.0	0.9	3.91
57.0	3.0	2.62	97.0	0.9	3.94
58.0	2.9	2.66	98.0	0.9	3.96
59.0	2.8	2.70	99.0	0.8	3.98
60.0	2.7	2.74	100.0	0.8	4.00
61.0	2.6	2.79	101.0	0.8	4.02
62.0	2.5	2.83	102.0	0.8	4.04
63.0	2.5	2.87	103.0	0.8	4.06
64.0	2.4	2.91	104.0	0.7	4.08
65.0	2.3	2.95	105.0	0.7	4.10
66.0	2.2	2.99	106.0	0.7	4.12
67.0	2.2	3.02	107.0	0.7	4.14
68.0	2.1	3.06	108.0	0.7	4.16
69.0	2.0	3.10	109.0	0.7	4.18
70.0	2.0	3.14	110.0	0.6	4.19
71.0	1.9	3.17	111.0	0.6	4.21
72.0	1.8	3.21	112.0	0.6	4.23
73.0	1.8	3.24	113.0	0.6	4.24
74.0	1.7	3.28	114.0	0.6	4.26
75.0	1.7	3.31	115.0	0.6	4.27
76.0	1.6	3.35	116.0	0.5	4.29
77.0	1.6	3.38	117.0	0.5	4.30
78.0	1.5	3.41	118.0	0.5	4.32
79.0	1.5	3.45	119.0	0.5	4.33
80.0	1.4	3.48	120.0	0.5	4.35

THERMISTOR RESISTANCE CHART

SENSOR, DEFROST TEMPERATURE

Outdoor Unit SENSOR, DEFROST TEMPERATURE
B CONSTANT · 3700±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · · 10kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
-40.0	319.4	0.29	0.0	31.2	1.95
-39.0	298.4	0.31	1.0	29.7	2.01
-38.0	279.0	0.33	2.0	28.2	2.07
-37.0	261.0	0.36	3.0	26.9	2.13
-36.0	244.3	0.38	4.0	25.6	2.19
-35.0	228.8	0.40	5.0	24.4	2.25
-34.0	214.4	0.43	6.0	23.3	2.31
-33.0	201.0	0.45	7.0	22.2	2.37
-32.0	188.5	0.48	8.0	21.2	2.43
-31.0	176.9	0.51	9.0	20.2	2.49
-30.0	166.1	0.54	10.0	19.3	2.54
-29.0	156.1	0.57	11.0	18.4	2.60
-28.0	146.7	0.60	12.0	17.6	2.66
-27.0	138.0	0.63	13.0	16.8	2.71
-26.0	129.8	0.67	14.0	16.1	2.77
-25.0	122.2	0.70	15.0	15.4	2.83
-24.0	115.1	0.74	16.0	14.7	2.88
-23.0	108.5	0.78	17.0	14.1	2.93
-22.0	102.3	0.82	18.0	13.5	2.99
-21.0	96.4	0.86	19.0	12.9	3.04
-20.0	91.0	0.90	20.0	12.4	3.09
-19.0	85.9	0.94	21.0	11.8	3.14
-18.0	81.1	0.99	22.0	11.3	3.19
-17.0	76.7	1.03	23.0	10.9	3.24
-16.0	72.5	1.08	24.0	10.4	3.29
-15.0	68.5	1.13	25.0	10.0	3.33
-14.0	64.9	1.18	26.0	9.6	3.38
-13.0	61.4	1.23	27.0	9.2	3.42
-12.0	58.1	1.28	28.0	8.8	3.47
-11.0	55.1	1.33	29.0	8.5	3.51
-10.0	52.2	1.39	30.0	8.1	3.55
-9.0	49.5	1.44	31.0	7.8	3.59
-8.0	46.9	1.49	32.0	7.5	3.63
-7.0	44.5	1.55	33.0	7.2	3.67
-6.0	42.3	1.61	34.0	6.9	3.71
-5.0	40.1	1.66	35.0	6.7	3.75
-4.0	38.1	1.72	36.0	6.4	3.78
-3.0	36.2	1.78	37.0	6.2	3.82
-2.0	34.5	1.84	38.0	6.0	3.85
-1.0	32.8	1.90	39.0	5.7	3.89
0.0	31.2	1.95	40.0	5.5	3.92

THERMISTOR RESISTANCE CHART

Outdoor Unit SENSOR, DEFROST TEMPERATURE
B CONSTANT · 3700±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · 10kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
40.0	5.5	3.92	80.0	1.4	4.66
41.0	5.3	3.95	81.0	1.4	4.67
42.0	5.1	3.98	82.0	1.4	4.68
43.0	4.9	4.01	83.0	1.3	4.69
44.0	4.8	4.04	84.0	1.3	4.70
45.0	4.6	4.07	85.0	1.2	4.71
46.0	4.4	4.10	86.0	1.2	4.71
47.0	4.3	4.12	87.0	1.2	4.72
48.0	4.1	4.15	88.0	1.1	4.73
49.0	4.0	4.17	89.0	1.1	4.74
50.0	3.8	4.20	90.0	1.1	4.74
51.0	3.7	4.22	91.0	1.1	4.75
52.0	3.6	4.24	92.0	1.0	4.76
53.0	3.4	4.27	93.0	1.0	4.76
54.0	3.3	4.29	94.0	1.0	4.77
55.0	3.2	4.31	95.0	0.9	4.77
56.0	3.1	4.33	96.0	0.9	4.78
57.0	3.0	4.35	97.0	0.9	4.79
58.0	2.9	4.37	98.0	0.9	4.79
59.0	2.8	4.39	99.0	0.8	4.80
60.0	2.7	4.40	100.0	0.8	4.80
61.0	2.6	4.42	101.0	0.8	4.81
62.0	2.5	4.44	102.0	0.8	4.81
63.0	2.5	4.45	103.0	0.8	4.82
64.0	2.4	4.47	104.0	0.7	4.82
65.0	2.3	4.48	105.0	0.7	4.83
66.0	2.2	4.50	106.0	0.7	4.83
67.0	2.2	4.51	107.0	0.7	4.83
68.0	2.1	4.53	108.0	0.7	4.84
69.0	2.0	4.54	109.0	0.7	4.84
70.0	2.0	4.55	110.0	0.6	4.85
71.0	1.9	4.57	111.0	0.6	4.85
72.0	1.8	4.58	112.0	0.6	4.85
73.0	1.8	4.59	113.0	0.6	4.86
74.0	1.7	4.60	114.0	0.6	4.86
75.0	1.7	4.61	115.0	0.6	4.86
76.0	1.6	4.62	116.0	0.5	4.87
77.0	1.6	4.63	117.0	0.5	4.87
78.0	1.5	4.64	118.0	0.5	4.87
79.0	1.5	4.65	119.0	0.5	4.88
80.0	1.4	4.66	120.0	0.5	4.88

SENSOR, DISCHARGE TEMPERATURE

Outdoor Unit SENSOR, DISCHARGE TEMPERATURE
B CONSTANT · 4250±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · · 80.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · · 50kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
-40.0	33007.9	0.01	0.0	2010.5	0.11
-39.0	30420.9	0.01	1.0	1894.4	0.12
-38.0	28056.1	0.01	2.0	1785.8	0.13
-37.0	25892.9	0.01	3.0	1684.1	0.14
-36.0	23912.6	0.01	4.0	1588.9	0.14
-35.0	22098.6	0.01	5.0	1499.6	0.15
-34.0	20435.7	0.01	6.0	1416.0	0.16
-33.0	18910.2	0.01	7.0	1337.6	0.17
-32.0	17509.9	0.01	8.0	1264.1	0.18
-31.0	16223.6	0.01	9.0	1195.0	0.19
-30.0	15041.2	0.02	10.0	1130.2	0.20
-29.0	13953.6	0.02	11.0	1069.3	0.21
-28.0	12952.7	0.02	12.0	1012.1	0.22
-27.0	12030.8	0.02	13.0	958.4	0.23
-26.0	11181.2	0.02	14.0	907.8	0.25
-25.0	10397.7	0.02	15.0	860.2	0.26
-24.0	9674.8	0.02	16.0	815.4	0.27
-23.0	9007.3	0.03	17.0	773.3	0.29
-22.0	8390.7	0.03	18.0	733.5	0.30
-21.0	7820.6	0.03	19.0	696.1	0.32
-20.0	7293.4	0.03	20.0	660.8	0.33
-19.0	6805.4	0.03	21.0	627.6	0.35
-18.0	6353.6	0.04	22.0	596.2	0.37
-17.0	5934.9	0.04	23.0	566.6	0.38
-16.0	5546.7	0.04	24.0	538.6	0.40
-15.0	5186.7	0.04	25.0	512.2	0.42
-14.0	4852.5	0.05	26.0	487.2	0.44
-13.0	4542.2	0.05	27.0	463.6	0.46
-12.0	4253.9	0.05	28.0	441.4	0.48
-11.0	3985.9	0.06	29.0	420.3	0.50
-10.0	3736.6	0.06	30.0	400.3	0.53
-9.0	3504.7	0.07	31.0	381.4	0.55
-8.0	3288.7	0.07	32.0	363.6	0.57
-7.0	3087.5	0.07	33.0	346.6	0.60
-6.0	2900.0	0.08	34.0	330.6	0.62
-5.0	2725.1	0.08	35.0	315.4	0.65
-4.0	2562.0	0.09	36.0	301.0	0.68
-3.0	2409.7	0.10	37.0	287.3	0.70
-2.0	2267.5	0.10	38.0	274.4	0.73
-1.0	2134.7	0.11	39.0	262.1	0.76
0.0	2010.5	0.11	40.0	250.4	0.79

THERMISTOR RESISTANCE CHART

Outdoor Unit SENSOR, DISCHARGE TEMPERATURE
B CONSTANT · 4250±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · 80.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · 50kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
40.0	250.4	0.79	80.0	50.0	2.42
41.0	239.3	0.82	81.0	48.3	2.47
42.0	228.8	0.85	82.0	46.6	2.51
43.0	218.8	0.88	83.0	45.0	2.56
44.0	209.3	0.92	84.0	43.4	2.60
45.0	200.2	0.95	85.0	41.9	2.64
46.0	191.6	0.98	86.0	40.5	2.69
47.0	183.5	1.02	87.0	39.1	2.73
48.0	175.7	1.06	88.0	37.8	2.77
49.0	168.3	1.09	89.0	36.5	2.81
50.0	161.2	1.13	90.0	35.3	2.85
51.0	154.5	1.17	91.0	34.2	2.90
52.0	148.1	1.20	92.0	33.0	2.94
53.0	142.0	1.24	93.0	32.0	2.98
54.0	136.2	1.28	94.0	30.9	3.02
55.0	130.7	1.32	95.0	29.9	3.06
56.0	125.4	1.36	96.0	28.9	3.09
57.0	120.4	1.40	97.0	28.0	3.13
58.0	115.6	1.45	98.0	27.1	3.17
59.0	111.0	1.49	99.0	26.3	3.21
60.0	106.6	1.53	100.0	25.4	3.24
61.0	102.4	1.57	101.0	24.6	3.28
62.0	98.4	1.62	102.0	23.9	3.32
63.0	94.6	1.66	103.0	23.1	3.35
64.0	91.0	1.70	104.0	22.4	3.39
65.0	87.5	1.75	105.0	21.7	3.42
66.0	84.2	1.79	106.0	21.1	3.45
67.0	81.0	1.84	107.0	20.4	3.49
68.0	77.9	1.88	108.0	19.8	3.52
69.0	75.0	1.93	109.0	19.2	3.55
70.0	72.2	1.97	110.0	18.6	3.58
71.0	69.5	2.02	111.0	18.1	3.61
72.0	67.0	2.06	112.0	17.5	3.64
73.0	64.5	2.11	113.0	17.0	3.67
74.0	62.2	2.15	114.0	16.5	3.70
75.0	59.9	2.20	115.0	16.0	3.73
76.0	57.8	2.24	116.0	15.6	3.76
77.0	55.7	2.29	117.0	15.1	3.78
78.0	53.7	2.33	118.0	14.7	3.81
79.0	51.8	2.38	119.0	14.3	3.84
80.0	50.0	2.42	120.0	13.9	3.86

SENSOR, OUTDOOR TEMPERATURE

Outdoor Unit SENSOR, OUTDOOR TEMPERATURE
B CONSTANT · 3700±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · · 10kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
-40.0	319.4	0.29	0.0	31.2	1.95
-39.0	298.4	0.31	1.0	29.7	2.01
-38.0	279.0	0.33	2.0	28.2	2.07
-37.0	261.0	0.36	3.0	26.9	2.13
-36.0	244.3	0.38	4.0	25.6	2.19
-35.0	228.8	0.40	5.0	24.4	2.25
-34.0	214.4	0.43	6.0	23.3	2.31
-33.0	201.0	0.45	7.0	22.2	2.37
-32.0	188.5	0.48	8.0	21.2	2.43
-31.0	176.9	0.51	9.0	20.2	2.49
-30.0	166.1	0.54	10.0	19.3	2.54
-29.0	156.1	0.57	11.0	18.4	2.60
-28.0	146.7	0.60	12.0	17.6	2.66
-27.0	138.0	0.63	13.0	16.8	2.71
-26.0	129.8	0.67	14.0	16.1	2.77
-25.0	122.2	0.70	15.0	15.4	2.83
-24.0	115.1	0.74	16.0	14.7	2.88
-23.0	108.5	0.78	17.0	14.1	2.93
-22.0	102.3	0.82	18.0	13.5	2.99
-21.0	96.4	0.86	19.0	12.9	3.04
-20.0	91.0	0.90	20.0	12.4	3.09
-19.0	85.9	0.94	21.0	11.8	3.14
-18.0	81.1	0.99	22.0	11.3	3.19
-17.0	76.7	1.03	23.0	10.9	3.24
-16.0	72.5	1.08	24.0	10.4	3.29
-15.0	68.5	1.13	25.0	10.0	3.33
-14.0	64.9	1.18	26.0	9.6	3.38
-13.0	61.4	1.23	27.0	9.2	3.42
-12.0	58.1	1.28	28.0	8.8	3.47
-11.0	55.1	1.33	29.0	8.5	3.51
-10.0	52.2	1.39	30.0	8.1	3.55
-9.0	49.5	1.44	31.0	7.8	3.59
-8.0	46.9	1.49	32.0	7.5	3.63
-7.0	44.5	1.55	33.0	7.2	3.67
-6.0	42.3	1.61	34.0	6.9	3.71
-5.0	40.1	1.66	35.0	6.7	3.75
-4.0	38.1	1.72	36.0	6.4	3.78
-3.0	36.2	1.78	37.0	6.2	3.82
-2.0	34.5	1.84	38.0	6.0	3.85
-1.0	32.8	1.90	39.0	5.7	3.89
0.0	31.2	1.95	40.0	5.5	3.92

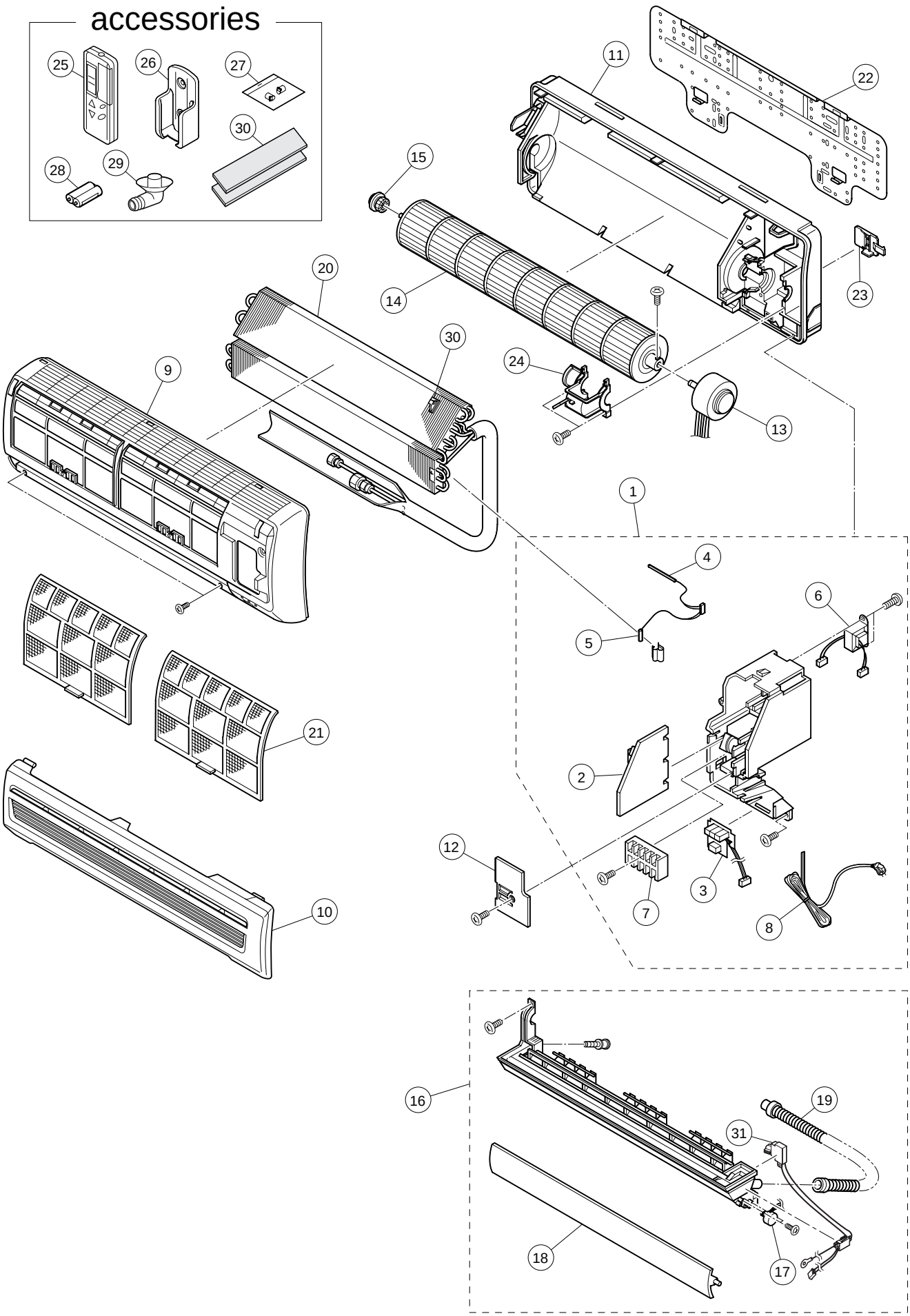
THERMISTOR RESISTANCE CHART

Outdoor Unit SENSOR, OUTDOOR TEMPERATURE
B CONSTANT · 3700±3%
STANDARD TEMPERATURE · · · · · · · · · · · · · 25.0℃
STANDARD RESISTANCE · · · · · · · · · · · · · · · 10kΩ±3%

T(℃)	R(kΩ)	Voltage(V)	T(℃)	R(kΩ)	Voltage(V)
40.0	5.5	3.92	80.0	1.4	4.66
41.0	5.3	3.95	81.0	1.4	4.67
42.0	5.1	3.98	82.0	1.4	4.68
43.0	4.9	4.01	83.0	1.3	4.69
44.0	4.8	4.04	84.0	1.3	4.70
45.0	4.6	4.07	85.0	1.2	4.71
46.0	4.4	4.10	86.0	1.2	4.71
47.0	4.3	4.12	87.0	1.2	4.72
48.0	4.1	4.15	88.0	1.1	4.73
49.0	4.0	4.17	89.0	1.1	4.74
50.0	3.8	4.20	90.0	1.1	4.74
51.0	3.7	4.22	91.0	1.1	4.75
52.0	3.6	4.24	92.0	1.0	4.76
53.0	3.4	4.27	93.0	1.0	4.76
54.0	3.3	4.29	94.0	1.0	4.77
55.0	3.2	4.31	95.0	0.9	4.77
56.0	3.1	4.33	96.0	0.9	4.78
57.0	3.0	4.35	97.0	0.9	4.79
58.0	2.9	4.37	98.0	0.9	4.79
59.0	2.8	4.39	99.0	0.8	4.80
60.0	2.7	4.40	100.0	0.8	4.80
61.0	2.6	4.42	101.0	0.8	4.81
62.0	2.5	4.44	102.0	0.8	4.81
63.0	2.5	4.45	103.0	0.8	4.82
64.0	2.4	4.47	104.0	0.7	4.82
65.0	2.3	4.48	105.0	0.7	4.83
66.0	2.2	4.50	106.0	0.7	4.83
67.0	2.2	4.51	107.0	0.7	4.83
68.0	2.1	4.53	108.0	0.7	4.84
69.0	2.0	4.54	109.0	0.7	4.84
70.0	2.0	4.55	110.0	0.6	4.85
71.0	1.9	4.57	111.0	0.6	4.85
72.0	1.8	4.58	112.0	0.6	4.85
73.0	1.8	4.59	113.0	0.6	4.86
74.0	1.7	4.60	114.0	0.6	4.86
75.0	1.7	4.61	115.0	0.6	4.86
76.0	1.6	4.62	116.0	0.5	4.87
77.0	1.6	4.63	117.0	0.5	4.87
78.0	1.5	4.64	118.0	0.5	4.87
79.0	1.5	4.65	119.0	0.5	4.88
80.0	1.4	4.66	120.0	0.5	4.88

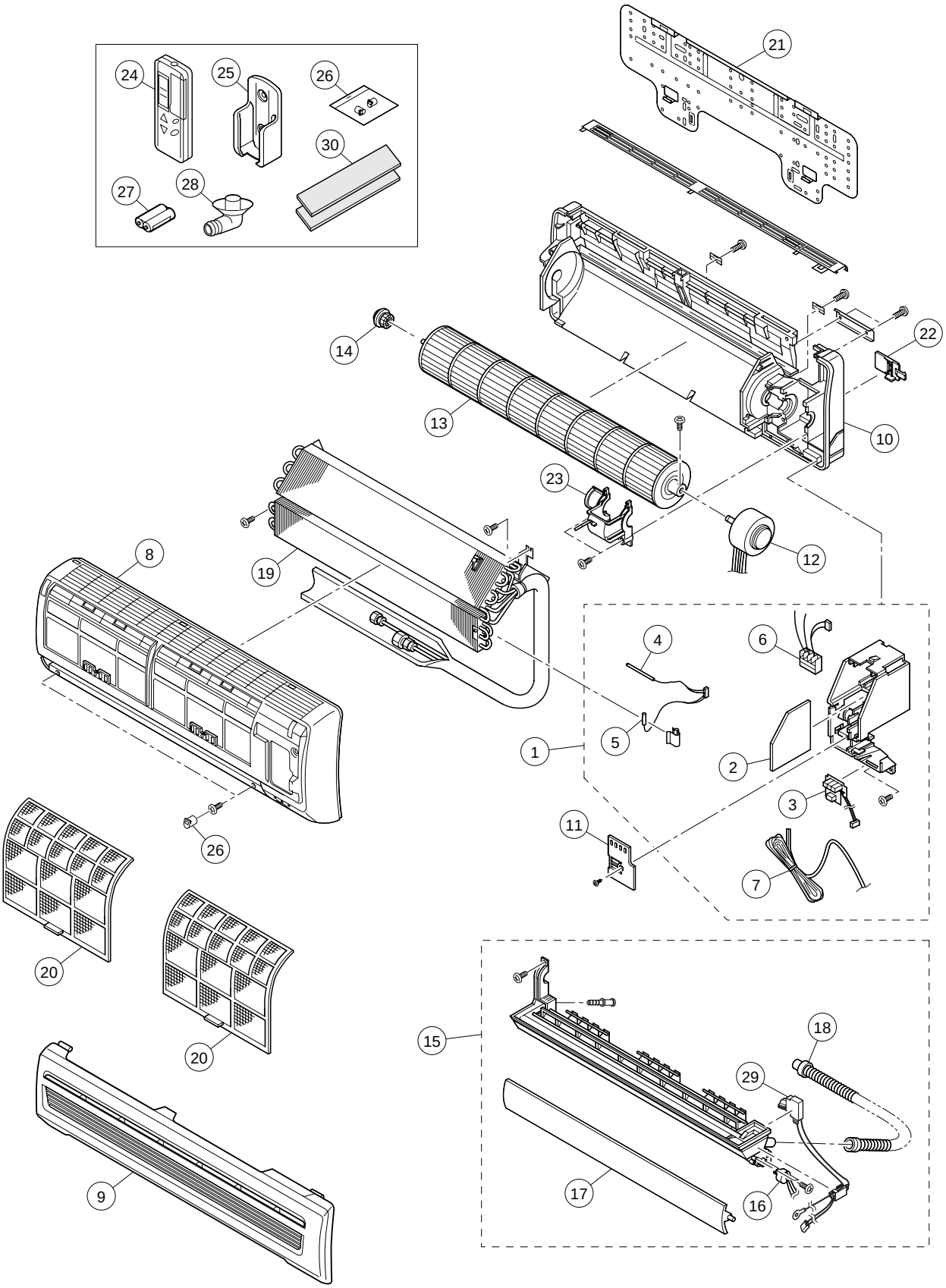
EXPLODED VIEW (INDOOR UNIT)

S 1731 Indoor



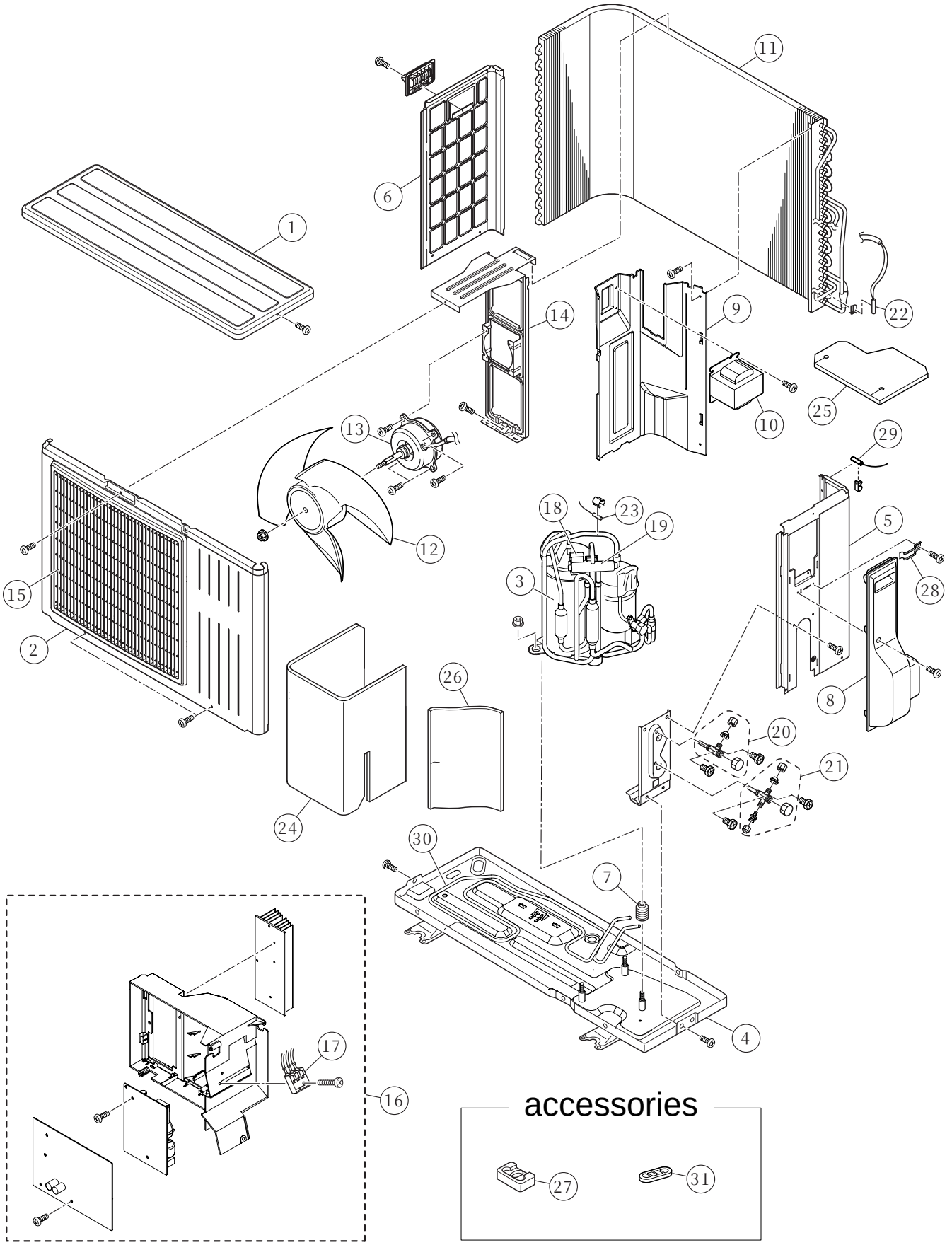
EXPLODED VIEW (INDOOR UNIT)

S 1735 Indoor



EXPLODED VIEW (OUTDOOR UNIT)

S 1731 Outdoor
S 1735 Outdoor



PARTS LIST (INDOOR UNIT)

NO.		S 1731 Indoor
1	CONTROLLER ASSY.	20446670
2	PCB (MAIN)	30066610
3	PCB (RECEIVER & DISPLAY)	30055510
4	SENSOR (TEMP,ROOM & HEAT EXCHAGER)	30013610
		30055070
5		30054290
6	TRANSFORMER	30021680
		51955370
		30055520
7	TERMINAL BLOCK	51620840
8	CORD,POWER SUPPLY	30021550
9	FRONT PANEL	20088190
10	INLET GRILLE	20431521
11	REAR CASE ASSY.	20050160
12	WIRING LID	20044490
13	MOTOR,FAN	53501600
		30063700
		53501710
14	TANGENTIAL FAN	50810080
		50810090
15	BEARING ASSY.	20048330
16	DRAIN PAN ASSY.	20412632
17	MOTOR,LOUVER	30061390
		51621030
		51621010
		30027370
		51621040
18	LOUVER (UP-DOWN)	20044430
19	DRAIN HOSE	51620000
20	EVAPORATOR ASSY.	20435501
21	AIR FILTER	20096300
22	MOUNTING PLATE ASSY.	20173950
23	PIPING SUPPORT	20044410
24	MOTOR SUPPORT	20044420
25	REMOTE CONTROLLER	20431870
26	REMOTE CONTROLLER HOLDER	20139550
27	SCREW CAP	20048420
28	BATTERY	30057750
29	DRAIN ELBOW	20148080
30	AIR CLEAN FILTER	30063040
31	IONIZER	30055490

PARTS LIST (INDOOR UNIT)

NO.	PARTS NAME	S 1735 Indoor
1	CONTROLLER ASSY.	20446680
2	PCB (MAIN)	30066620
3	PCB (RECEIVER & DISPLAY)	30055510
4	SENSOR (TEMP,ROOM & HEAT EXCHAGER)	30013610
		30055070
5		30054290
6	TERMINAL BLOCK	51620840
7	CORD,POWER SUPPLY	30021550
8	FRONT PANEL ASSY.	20088200
9	INLET GRILLE	20431521
10	REAR CASE ASSY.	20048710
11	WIRING LID	20044490
12	MOTOR,FAN	53501610
		30063710
13	TANGENTIAL FAN	50810090
		50810060
		50810080
14	BEARING ASSY.	20048330
15	DRAIN PAN ASSY.	20412632
16	MOTOR,LOUVER	30061390
		51621030
		51621010
		30027370
		51621040
17	LOUVER (UP-DOWN)	20044450
18	DRAIN HOSE	51620000
19	EVAPORATOR ASSY.	20422600
20	AIR FILTER	20205120
21	MOUNTING PLATE ASSY.	20173950
22	PIPING SUPPORT	20044410
23	MOTOR SUPPORT	20045050
24	REMOTE CONTROLLER ASSY.	20431870
25	REMOTE CONTROLLER HOLDER	20139550
26	SCREW CAP	20048420
27	BATTERY	30057750
28	DRAIN ELBOW	20148080
29	IONIZER	30055490
30	AIR CLEAN FILTER	30063040

PARTS LIST (OUTDOOR UNIT)

NO.	PARTS NAME	S 1731 Outdoor	S 1735 Outdoor
1	TOP PANEL ASSY.	20444970	←
2	FRONT PANEL	20413612	←
3	COMPRESSOR	30061680	←
4	BOTTOM PANEL ASSY.	20445011	←
5	RIGHT SIDE PANEL ASSY.	20415191	←
6	LEFT SIDE PANEL ASSY.	20415201	←
7	VIBRATION PROOF RUBBER (comp.)	30061700	←
8	VALVE COVER	20130230	←
9	BAFFLE PANEL ASSY.	20447540	←
10	REACTOR	30055560	←
11	CONDENSER ASSY.	20415340	←
12	PROPELLER FAN	30056370	←
13	MOTOR	30066600	←
14	BRACKET, MOTOR	20415272	←
15	OUTLET GRILLE	20414980	←
16	CONTROLLER ASSY.	20446490	20446500
17	TERMINAL BLOCK	51620820	←
18	COIL,4-WAY VALVE	51202320	←
19	4-WAY VALVE ASSY.	20437580	←
20	VALVE,SERVICE (1/4)	51535620	←
21	VALVE,SERVICE (3/8)	30056350	←
22	SENSOR (TEMP.DEFROST)	51100960	←
		30054280	←
23	SENSOR (TEMP.DISCHARGE)	51100870	←
		30054310	←
24	SOUND PROOF MATERIAL1	20437720	←
25	SOUND PROOF MATERIAL2	20437730	←
26	SOUND PROOF MATERIAL3	20439090	←
27	VIBRATION PROOF RUBBER (UNIT)	20046680	←
28	FIXTURE,CORD	20038190	←
29	SENSOR (TEMP.OUTDOOR)	30067680	←
30	DEFROST HEATER	30066390	←
31	GUM BUSHING	20148090	←

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